

AD-A149 310

B R L AD

MEMORANDUM REPORT BRL-MR-3384

AN INTRODUCTION TO THE USE OF THE ARMY UNIT RESILIENCY ANALYSIS (AURA) METHODOLOGY: VOLUME I

J. Terrence Klopcic Lisa K. Roach

September 1984



APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

US ARMY BALLISTIC RESEARCH LABORATORY ABERDEEN PROVING GROUND, MARYLAND

Destroy this report when it is no longer needed. Do not return it to the originator.

Additional copies of this report may be obtained from the National Technical Information Service, U. S. Department of Commerce, Springfield, Virginia 22161.

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

The use of trade names or manufacturers' names in this report does not constitute indorsement of any commercial product.

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER	
MEMORANDUM REPORT BRL-MR-3384	AD-A149310		
4. TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED	
AN INTRODUCTION TO THE USE OF THE ARMY UNIT RESILIENCY ANALYSIS (AURA) METHODOLOGY: VOLUME I		FINAL	
		6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(a)	
J. T. Klopcic			
L. K. Roach			
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
US Army Ballistic Research Laborato	ory	ANDA W WORK OWN HOMBERS	
Aberdeen Proving Ground, MD 21005-	5066	1L162618AH80	
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE September 1984	
US Army Ballistic Research Laborato	ry		
ATTN: AMXBR-OD-ST	ra//	13. NUMBER OF PAGES 249	
Aberdeen Proving Ground, MD 21005-	5000	15. SECURITY CLASS. (of this report)	
H. MORITORIAS NOLASTI RAME & ADDRESSIS BIRDIN	19 11021 0011110111112 01111 47	UNCLASSIFIED	
]			
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)			
Annual for public volumes dis	hadhadan anlimit	lod.	
Approved for public release; dis	tribution unlimit	.ea.	
17. CISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
<u>.</u>			
•			
18. SUPPLEMENTARY NOTES			
1	19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
Resiliency	Lethali	•	
Effectiveness Unit Analysis		alysis	
Residual Combat Capability			
20. ABSTRACT (Continue on roverse side if necessary an	d identify by block number)		
As a result of the increased application of the Army Unit Resiliency			
Analysis (AURA) methodology in a variety of studies conducted by a number of			
agencies, it became evident that a user's introduction to the code was needed.			
This report is the first of two volumes designed to meet that need. This report			
is intended to demonstrate the use of the code, which is accomplished by a pro-			
gression of examples in which a hypothetical unit is described and played			
through a series of events. This volume is designed to take the user through			
(continued)			

DD 1 JAN 73 1473

EDITION OF 1 HOV 65 IS OBSOLETE

	Cignion OF THIS PAGE(When Data Entered)
	l and organizational description of the unit, reliability failures,
	l repair and use of conventional munitions and conventional lethal-
	of chemical and nuclear weapons, and their corresponding inputs,
	nted in Volume II.
ļ	
1	
1	
İ	
j	
1	
1	
1	į
	,
İ	
1	
1	
[
1	
1	
1	
	į

UNCLASSIFIED

TABLE OF CONTENTS

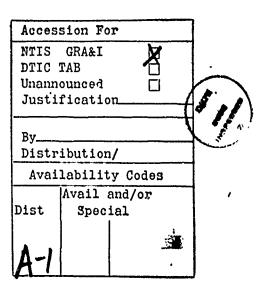
		Page
	LIST OF ILLUSTRATIONS .	7
I.	INTRODUCTION	11
	A. Scope	11
	B. AURA Formats	12
II.	RUN #1 - DEBUG	13
	A. The Example Unit	13
	B. Repertoire	15
	C. Runstream Organization	15
	D. Deployment	17
	E. Links	19
	F. Subchains	24
	G. Orlinks	24
	H. Compound Links	24
	I. Chains	28
	J. Comments on Function Structures	28
	K. Control Instructions and Final Runstream	30
	L. Execution of an AURA Run	30
III.	ORGANIZATION AND CONTROL OF OUTPUT	30
IV.	OUTPUT #1	34
	A. Mnemonic Control Cards	34
	B. Heading, Event Table and Miscellaneous	36
	C. Assets	36
	D. Link Definition Table	39
	E. Link-Functional Groups Substitutability Matrix	41
	F. Subchains, Orlinks, Compound Links, and Chains	41
	G. Chain Plots	41
	H. Deployment and Deployment Plot ,	41
	I. Summary of Output #1	46
٧.	RUN #2 - EQUIPMENT FAILURE	46
	A. Failure Inputs	46
	R Pecanstitution Events	40

TABLE OF CONTENTS (continued)

		Page
	C. Replications	49
	D. Runstream for RUN #2	49
	E. Output from RUN #2	49
VI.	RUN #3 - REPAIR	58
	A. Repair Inputs	58
	B. Output Controls	64
	C. Runstream for RUN #3	64
VII.	OUTPUT FROM RUN #3	64
	A. Baseline Output	64
	B. PREFAIL Excursion	73
	C. Limited Repair Parts	73
VIII.	ATTACKING WITH FRAGMENTING/HIGH EXPLOSIVE MUNITIONS	75
	A. General	75
	B. Target Location and Warhead Delivery Errors	75
	C. Coordinate Systems	77
	D. Specification of Incoming Fire - ROUND and VOLLEY	79
	E. Conventional Lethality	80
	F. RUN #4 - Results	87
	G. Stochastic Lethality	94
IX.	MULTIPLE MISSIONS	95
	A. A "Dummy" Link	95
	B. Chains for RUN #4B	99
х.	SUMMARY OF VOLUME I	102
	REFERENCES	103
	APPENDIX A - RCCINFO	105
	APPENDIX B - RUN #1 OUTPUT	117
	APPENDIX C - RUN #2 OUTPUT	127
	APPENDIX D - RIIN #3 OUTPUT	147

TABLE OF CONTENTS (continued)

			Page
APPENDIX E - RUN #4 OUTPUT	•		177
DISTRIBUTION LIST		×	247



LIST OF ILLUSTRATIONS

Figure	•	Page
1	Example of a Unit Deployment	14
2	REPERTOIRE for the Example Case	16
3	DEPLOYMENT Input for the Example Case	18
4	One Line from the Deployment	18
5	A Generalized Link-Effectiveness Curve	19
6	Link Effectiveness Curve for the Example Case	21
7 .	LINKS Input for the Example Case	22
8	SUBCHAINS from the Example Case	25
9	SUBCHAIN Input for the Example Case	25
10	ORLINKS from the Example Case	26
11	ORLINK Input for the Example Case	26
12	COMPOUND LINK from the Example Case	27
13	COMPOUND LINK Input for the Example Case	28
14	The Initial CHAIN for the Example Case	29
15	CHAIN Input for the Example Case	28
16	The Initial Runstream for the Example Case	31
17	Generic Execution STREAM	30
18	The Mnemonic Control Card Output from the Example Case	35
19	Heading, Event Table and Miscellaneous Information from the Output	. 37
20	Names and Associated Data for All Assets	38
21	Subtask Parameters	40

LIST OF ILLUSTRATIONS (continued)

Figure		Page
22	The Link-Asset Substitutability Matrix from the Output	42
23	Recapitulation of Subchains, Orlinks, Compound Links and Chain Inputs	43
24	Line Printer Depiction of the Unit Functional Structure	44
25	Recapitulation of Deployment Information	45
26	Line Printer Plot of the Deployment	47
27	RUNSTREAM for RUN #2	50
28	The Expanded Event Table and Reliability-Type Failure Data for RUN #2	53
29	Effectiveness vs. Time Data for RUN #2	55
30	Plot of the Effectiveness vs Time Data for RUN #2	56
31	Functional Group Survivor Table for RUN #2	57
32	LINK Summary Table for RUN #2	59
33	End-of-Encounter Summary Data for Equipment	63
34	RUNSTREAM for RUN #3	65
35	Effectiveness vs Time Data for RUN #3	68
36	Functional Group Survivor Table for RUN #3	69
37	LINK Summary Table for RUN #3	70
38	Graphic Comparison of RUN #3 and RUN #3B Average Unit Effectiveness	74
39	Relationship between the X-Y and RANGE-DEFLECTION Coordinate Systems	78

LIST OF ILLUSTRATIONS (continued)

Figure		Page
40	RUNSTREAM for Incoming Fire Data .	81
41	Examples of Carleton Functions and Concentric Step Functions	83
42	Conventional Lethality Data for the Example Case	86
43	Event Table for RUN #4	88
44 .	Functional Group Survivor Table for RUN #4	89
45	LINK Summary Table for RUN #4	90
46	Effectiveness vs. Time Data for RUN #4 with Stochastic Lethality	96
47	LINKS Input for RUN #4B	98
48	CHAINS Input Stream for RUN #4B	100
49	Graphic Comparison of Effectiveness Results for Runs #4, #4B and #4B (60%)	101

I. INTRODUCTION

A. Scope

The Army Unit Resiliency Analysis methodology, AURA (formerly called Residual Combat Capability [RCC]), is an amalgamation of analysis techniques, algorithms, and data sources gathered from the laboratories that specialize in the various areas which impact upon the resiliency of a military unit. There are many such areas — unit organization and operation, cross—training, vulnerabilities, and threats, to name a few. As a result of its breadth and versatility, AURA is finding application in a variety of studies conducted by a number of agencies. This growth in the number of ongoing studies is increasing the number of analysts who conduct AURA studies and who, therefore, must learn to run the code. This report is intended as a primer for those analysts. However, in showing some of the inputs, outputs, and functions of AURA, this report will also give a better operational understanding of the methodology to those needing more than

AURA was, from its inception, anticipated for multi-agency use. Therefore, a great deal of effort was spent in making the main program as user-oriented as possible. Specific steps taken include: mnemonically keyed, free-field, English word inputs; extensive checks and diagnostics; machine independent coding (standard FORTRAN-77); and

the overview level of knowledge given by References 1 through 5.

J.T. Klopcic, et al, "RCC: A Methodology/Code to Model Residual Combat Capability at the Unit Level," Ballistic Research Laboratory, Technical Report No. ARBRL-TR-02156, April 1979, (UNCLASSIFIED), AD B037451L.

J.T. Klopcic, et al, "RCC: A Methodology/Code to Model Residual Combat Capability at the Unit Level," Addendum to Reference 1, Ballistic Research Laboratory, Technical Report No. ARBRL-TR-021 %, September 1979, (UNCLASSIFIED), AD B042085L.

J.T. Klopcic and M.A. McDonald, "RCC Methodology/Code Extensions (JUL 80): Failure Model, Repair/Return, Augmented I/O and Division-Level Interfacing," Ballistic Research Laboratory, Technical Report No. ARBRL-TR-02275, December 1980, (UNCLASSIFIED), AD A095346.

⁴ J.T. Klopcic and J.J. Baldauf, "The BRL Chemical Protection Degradation Mcdel: The Degraded Effectiveness Algorithm, Degradation Matrix and 'MOPPDAT' Individual Performance Database," Ballistic Research Laboratory, Draft Report, (UNCLASSIFIED).

J.T. Klopcic and J.C. Maloney, "New Nuclear Vulnerability Database, Input Format and Supporting Software for RCC," Ballistic Research Laboratory, Memorandum Report No. ARBRL-MR-03001, March 1980, (UNCLASSIFIED), AD A084982.

development of data sets to allow "black-box" operation of many of the code areas. However, like any tool, AURA still requires the user to have some basic acquaintance with its structure and operation before he can meaningfully begin to conduct runs. We feel that such acquaintance is most easily and clearly gained by "following through" some illustrative examples and have therefore built this report around a series of such examples.

The format of the report is as follows. A hypothetical unit with a corresponding mission is modeled in the first section. This unit is then put into a number of example situations in the following sections. In each section, the addition being made to the scenario, the corresponding additions to the runstream, and the resulting changes in output are presented.

B. AURA Formats

Every line of AURA input is in one of the following three forms: all words/names or sets of words, separated by commas; one word/name followed by commas and numbers; or all numbers. Numbers may be integers or reals, as required by the specific input: presence of a decimal point in a number is necessary and sufficient to indicate a real number. Exponential forms (e.g. 1.E6) are acceptable as reals. AURA reads all inputs as a string of 80 characters, and then breaks the string down into its components. In the process, all names and sets of words are left justified. Numbers need not be placed into any particular columns, but merely entered in the required order, and separated by blanks or commas. Names and sets of words, which may include imbedded blanks, must be separated from subsequent names, sets of words, or numbers by commas.

The dollar sign, \$, is a special character in an AURA input line. A dollar sign in the first column has the following uses:

- The card is an additional, optional input associated with the preceding card (e.g. substitutes for a subtask (LINK) which are optional, are entered on a card headed by a \$ which follows the LINK description card.)
- The card is a continuation of the preceding card (i.e. the list of words or numbers being input did not all fit on the preceding card.)

The "tic-tac-toe" sign, #, is also a special character which causes any information that follows (on the same card) to be ignored. This Teature allows the user to insert comments in his runstream for his own use. For example, in the following set of cards

LINKS

•

THESE SUBTASKS REFLECT THE DIV &6 0 & 0 MANUAL FDSET, 1., 25 # SLOW BACKUP FOR FADAC

card 2 will be completely ignored, while the scan on card 3 will cease after the "25."

II. RUN # 1 - DEBUG

It is often convenient in running a computer code to allow the code to test the inputs, detect errors and report on ambiguities without attempting to execute. In AURA, this feature is called DEBUG and is one of the options under the MODE mnemonic. In this section, we begin a series of example analyses by presenting an example unit and developing the AURA inputs which describe the unit. Then, using the DEBUG option, we test the inputs.

A. The Example Unit

In AURA, a unit is described physically and functionally. The physical description consists of the elements and personnel, as would be listed in a table of organizations and equipment (TO&E). The functional description is the mission of the unit, the subtasks that must be done to accomplish the mission, and the relationships between the tasks.

For this report, the example unit is a small, hypothetical supply unit. The mission of the unit is to load trucks on order at a certain ratio. Two classes of items, heavy and light, are to be loaded: the heavy items, which comprise 25 percent of each load, must be loaded with a crane; the light items can be loaded by hand or by forklift. The order to fill the trucks is received by radio or telephone. Personnel are required to receive the order, man the forklift and crane teams, drive the truck, and handload if required. Handloading, however, can never accomplish more that 65 percent of the required rate.

There is also a loadmaster, who supervises the operation. However, the unit has functioned together long enough to work at 75 percent of the required rate even if the loadmaster's job is not done.

For this scenario, the elements of the unit are deployed as shown in Figure 1. Note that the coordinate system used is an arbitrary choice of the user. The deployment establishes what we refer to as the TARGET COORDINATE system, in which all locations are specified. The unit of length is also arbitrary; however, the unit chosen must be used consistently in all inputs, including such decisive inputs as toxic chemical dispersion, target location errors, and lethal radii for munitions. As a standard practice, meters (length) and a convenient time unit (minutes) are recommended.

Although not shown in Figure 1, each item, or set of items, has conventional, nuclear, and toxic kill criteria associated with its deployment: these criteria specify the level of damage required to render the item deployed at that point incapable of performing the task to be done at that point. Each item is also given conventional, nuclear, and toxic postures, which are not shown in Figure 1.

Finally, AURA deployments define those locations at which tasks which are not originally staffed would be done if needed. An example of

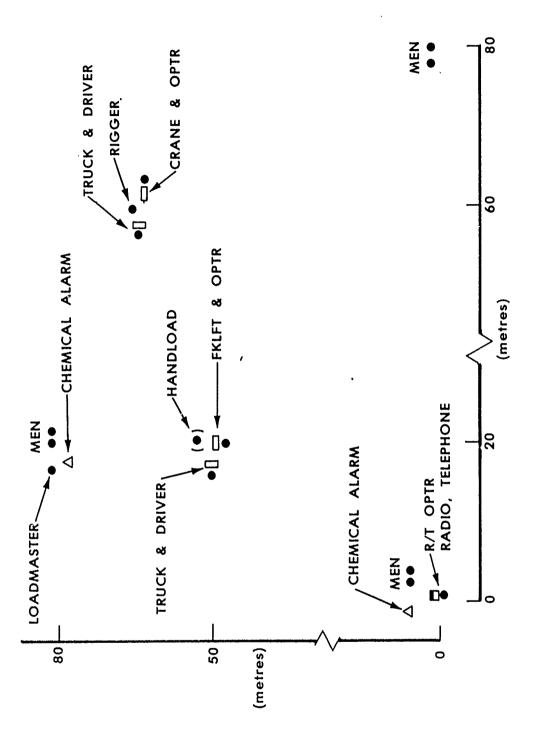


Figure 1. Example of a Unit Deployment

such a task, called a "dummy link," is the handloading job. As described above, if it is more effective to load the light items by forklift, handloading will not be done. If handloading is required, however, it will be done where shown. Dummy links are discussed in more detail in Section IX.A.

The code inputs to create this deployment are described in the following sections.

B. REPERTOIRE

One of the necessary features of a user-friendly code is a readable input stream. The user should be able to refer to items by name throughout his input instructions. This feature requires, however, that the code knows which words (or sets of words) are names of items, as opposed to names of commands. In AURA, a great deal of efficiency is achieved by having the user teach the code the names of items (which AURA calls assets) and weapons. This is done following the mmemonic REPERTOIRE. The REPERTOIRE inputs for the example case are shown in Figure 2.

The REPERTOIRE inputs serve another extremely useful purpose. Often, many assets or weapons will share some common characteristics. For example: any person may have the same vulnerability as any other who is in the same job in the same location; a given warhead will have the same lethality (for the same terminal orientation, height-of-burst, etc.) regardless of the delivery system which delivered it; and any truck is substitutable for the messenger vehicle. The REPERTOIRE input allows attaching additional, common names to various assets and weapons. In the subsequent inputs, those items with common characteristics can be referred to as a group by use of their common name. Referring to Figure 2, the example case gives the common name TRK to TRUCK and CRANE, and TALKY to RADIO, ALARM, and TELE. All personnel are designated PERSONNEL.

Finally, it should be noted that every asset and weapon must have one unique name, since certain inputs, such as DEPLOYMENT, require specification of a particular item. Assets may have more than one unique name; however, additional unique names are wasteful and could be confusing if used in conflict with each other and therefore trigger a warning message.

C. Runstream Organization

Before continuing with the input for RUN # 1, a few general comments on AURA runstream organization are in order.

1. Blocks of information are headed by a mnemonic card, which indicates the type of data which is coming. An example of a mnemonic is the REPERTOIRE card discussed above, which indicates that asset and weapon names follows.

END # THIS END CARD IS ESSENTIAL # NOTE THE USE OF THE # SIGN TO INPUT COMMENTS TRANSPARENT TO THE CODE M ANY RUN WHICH EMPLOYS WEAPONS (REF. DTHER EXAMPLES IN THIS REPORT # HUST LIST WEAPON NAMES AFTER A "WEAPON" CARO IN THE REPERTOIRE #THIS IS THE INPUT FOR RUN #1 REPERTOIRE FGS FKLFT OP, PERSONNEL CRANE OP, PERSONNEL RIGGER, PERSONNEL R/T OP, PERSONNEL LOADHSTR, PERSONNEL ORIVER, PERSONNEL MEN, PERSONNEL AL ARH, TALKY RADIO, TALKY TELE, TALKY CRANE, TRK TRUCK, TRK FKLFT

Figure 2. REPERTOIRE for the Example Case

- 2. A block of information is ended by an END card. The input route will attempt to fill in omitted END cards (after giving a warning). However, the REPERTOIRE END card is absolutely essential.
- 3. The REPERTOIRE must come first, since knowledge of the name3 is needed for subsequent inputs. However, following the REPERTOIRE END card, blocks of information can be input in any order.
- 4. All inputs use the sp ial interpretive input routines described in Section I.B. of this report.
- A list of all mnemonics and a brief description of the information block which follows is kept on a computer file. A printout of the file is contained in Appendix A.

It is recommended that the user refer to Appendix A throughout this report.

D. Deployment

and business to resease the second of the se

The unit deployment (Figure 1) is input to AURA via the lines shown in Figure 3. Referring to Figure 4, which contains one line from Figure 3, one sees that the first entry is the name of the item being deployed, as it first appeared in the Repertoire. The second and third entries are the X and Y coordinates of the deployment point and the fourth entry is the "average" number of FKLFT OPs located there.

Two sets of three code numbers complete the card. The first set gives the conventional, nuclear, and toxic kill criteria for a FKLFT OP at this point. The second set gives the initial conventional, nuclear, and toxic postures for the FKLFT OP. These codes relate such elements as vulnerability data and job difficulty to an item deployed at this point; precise definition of the codes will be given within the following sections when discussing the pertinent elements.

Appendix A lists a number of options and defaults which could be used with the DEPLOYMENT input. Some, like posture-change-under-fire, will be added as a more complex scenario is developed.

```
DEPLOYMENT
R/T OP, 0.,0., 1.,1,1,2,1,1,0
RADIO, 0.,0.,1.,1,1,1,1,1,0
ALARM, 0.,0.,1.,1,1,1,1,1,0
TELE, 0.,0.,1.,1,1,1,1,0
MEN, 0.,1.,2.,1,1,1,1,1,1
TRUCK, 20.,50.,0.6,1,1,1,1,1,0
DRIVER, 20., 50., 0.6, 1, 1, 3, 1, 1, 0
FKLFT, 20.,50.,1.,1,1,1,1,1,0
FKLFT OP, 20.,50.,1.,1,1,3,1,1,0
HANDLOAD, 20., 50., -5., 1, 1, 4, 1, 1, 0
                                       # THIS IS A DUMMY LINK.
# THE - SIGN ABOVE IS OPTIONAL. SINCE HANDLOAD ISN'T IN THE REPERTOIRE,
# THE CODE KNOWS HANDLOAD IS A DUMMY LINK.
LOADMSTR, 20., 80., 1., 1, 1, 5, 1, 1, 0
MEN, 20., 80., 2., 1, 1, 1, 1, 1, 1
ALARM, 20.,80.,1.,1,2,1,1,1,0
CRANE, 60., 60., 1., 1, 1, 1, 1, 1, 0
CRANE OP, 60., 60., 1., 1, 1, 3, 1, 1, 0
TRUCK, 60., 60., 0.4, 1, 1, 1, 1, 1, 0
DRIVER, 60., 60., 0.4, 1, 1, 3, 1, 1, 0
RIGGER, 60., 60., 1., 1, 1, 4, 1, 1, 0
MEN, 80., 0., 2., 1, 1, 1, 1, 1, 1, 1
END
```

Figure 3. DEPLOYMENT Input for the Example Case

```
FKLFT
        OP,
               20.,
                      50.,
                             1.,
                                    1, 1, 3,
                                                1, 1, 0
Item name
                       Y
              X
                             No.
                                    Kill
                                                Initial
                             Here
                                    Criteria
                                               Posture
                                    Codes
                                                Codes
```

TO A STATE OF THE PROPERTY OF

Figure 4. One Line from the Deployment (Figure 3)

E. Links

The subtasks which can be performed by elements of the example unit were described during the description of the unit in Section II. A. In AURA, the effectiveness of subtask performance is quantified, in terms of the effective assets allocated to each subtask, via link-effectiveness curves.

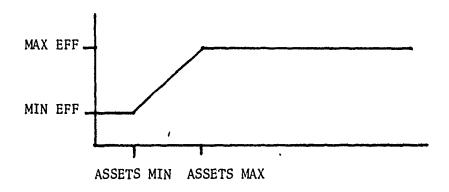


Figure 5. A Generalized Link-Effectiveness Curve

A generalized link-effectiveness curve is shown in Figure 5. It is clear that four numbers are required to specify the generalized curve; viz.: MAX EFF (the maximum attainable effectiveness), ASSETS MAX (the

corresponding numbers of assets required for MAX EFF), MIN EFF (the minimum effectiveness), and ASSETS MIN (the corresponding assets for MIN EFF). These four numbers are input to AURA for each job via the LINKS input. An additional parameter, ENT MAX, is available to limit the number of entities which can engage in a particular task, e.g., there can be only one commander, two gunners per howitzer, etc. The format for LINKS input is given in Appendix A.

The link-effectiveness curves for the example unit are shown in Figure 6. The specific LINKS input to describe the curves of Figure 6 is represented in Figure 7.

The importance and versatility of the LINKS input merit further discussion here. First, as noted in Appendix A, the general format for the input of the four numbers is:

LINK NAME, ASSETS MAX, MAX EFF, ENT MAX, \$M, ASSETS MIN, MIN EFF

NOTE: MAX EFF and MIN EFF must be input as percents and must be integers (no decimal points) between 1 and 100. The remaining numbers must be reals (with decimal points).

It has been found, however, that most subtasks have the following simple description: given enough assets, the job effectiveness is 100 percent; as the assets go to zero, so does the effectiveness. The majority of links in Figure 6 fit this description. It was therefore decided to adopt default values to simplify the input of such links.

PARAMETER	<u>DEFAULT</u>
MAX EFF	100%
MIN EFF	0%
ASSETS MIN	0.
ENT MAX	unlimited

With these defaults, a LINKS input reduces to

LINK NAME, ASSETS MAX, ENT MAX

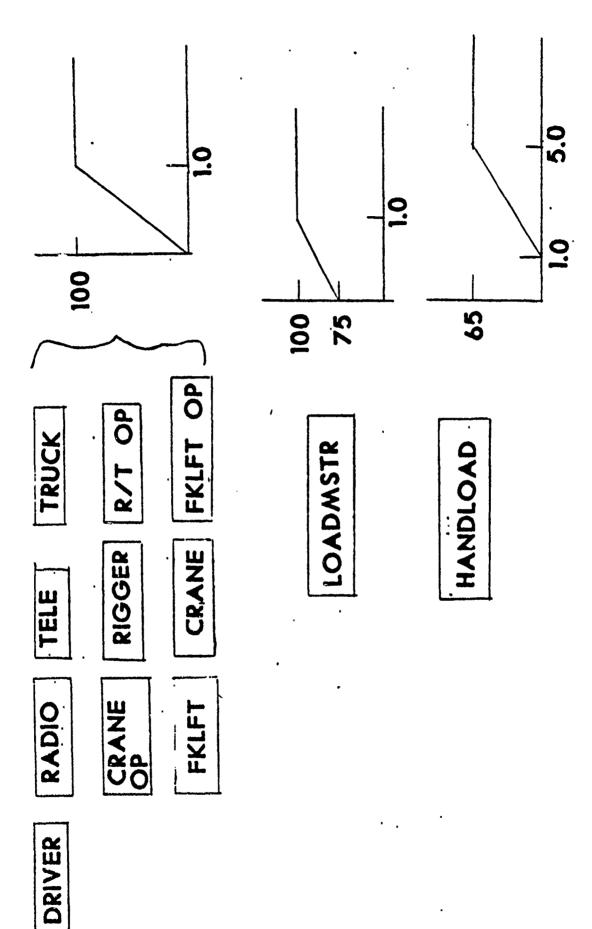
for an entity limited link, and

THE WARRANT TO SELECT THE PROPERTY OF THE PROP

LINK NAME, ASSETS MAX

for an unlimited link. LOADMSTR and TRUCK in Figure 7 are examples of such inputs.

The LINKS input is also used to input other information pertinent to the accomplishment of subtasks. The normal link is named after the



TRANSPORT PROGRAM TO THE PROGRAM TO

Figure 6. Link-Effectiveness Curve for the Example Case

CHANGE BY CHANGE BY CHANGE BY CANCELLAND BY CHANGE BY CANCELLAND BY CHANGE BY CANCELLAND CHANGE BY CHANGE

```
LINKS
 DRIVER, 1., 1.
$A, TRUCK
$PERSONNEL
 $T, 15.
 $E,.85
 RADIO, 1.0
 TELE, 1.0
TRUCK, 1.0
CRANE OP, 1.0, 1.0
 $A, CRANE
$FKLFT OP, RIGGER, LOADMSTR
$T, 10., 5., 5.
$E, 0.8, 0.5, 1.0
RIGGER, 1.0
 $PERSONNEL
$T, 5.
$E, 0.6
R/T OP, 1.0, 1.0
 $LOADMSTR, PERSONNEL
 $T,20.,15.
$E, 1.0, 0.8
FKLFT, 1.0
GRANE, 1.0
FKLFT OP, 1.0, 1.0
 $A, FKLFT
★CRANE OP, LOADMSTR, PERSONNEL
$E,0.9, 1.0, 0.2
$T, 10., 5., 5.
LOADMSTR, 1., 2.
$M, 75
HANDLOAD, 5.0, 65
$M,1.0
*PERSONNEL
$E,1.
$T,5.
 END
```

Figure 7. LINKS Input for the Example Case

functional group whose primary job is the link subtask. For example, the RIGGER and RADIO links have the same names that were given (in the REPERTOIRE) to the RIGGER person and RADIO piece of equipment. Whenever a link has the same name as an asset, AURA automatically assumes: that items of the asset can be assigned to do the link subtask; that such items need no time to get into the job; and that, if not otherwise degraded, such items can perform at an effectiveness of l. (i.e., by members of functional groups other than the one for whom the link is named). Substitutes are named on a card beginning with a dollar sign (\$), which follows a link card. For example, in Figure 7, the R/T OP link contains the following lines.

R/T OP, 1.0, 1.0 \$LOADMSTR, PERSONNEL \$T, 20., 15. \$E, 1.0, 0.8

These cards give AURA the following information about the R/T OP job:

- a. The normal performer of the job is the person called R/T OP (as listed in the REPERTOIRE).
- b. One person is sufficient for 100 percent performance.
- c. A maximum of one person can do the job.
- d. The person called LOADMSTR in the REPERTOIRE can be substituted into the job, as can everyone having the additional name PERSONNEL.
- e. The LOADMSTR requires 20 minutes to get into the job. Other PERSONNEL require 15.
- f. The LOADMSTR can perform at effectiveness 1. (as well as the R/T OP himself), whereas other PERSONNEL can be at best .8.

The last two pieces of information (e. and f.) came from the cards headed \$T and \$E.

These cards (either one first) MUST follow every substitution card, and contain an effectiveness and substitution time for each asset name on the substitution card.

The final link option shown in Figure 7 is the associated link. For example, the DRIVER link has the following cards:

DRIVER, 1., 1. \$A, TRUCK \$PERSONNEL \$T, 15. \$E, .85 Normally, the value of ENT MAX (the second one on the DRIVER card) is taken as an absolute number. An absolute ENT MAX would mean that a maximum of one driver could be used. (This prevents using two ineffective substitutes as an effective replacement for one good driver.) However, in actuality, the maximum number of drivers depends on the number of items assigned to the TRUCK subtask. To input this information, the user can "associate" the TRUCK link to the DRIVER by using the \$A card. The effect of including the \$A card is to cause AURA to interpret the ENT MAX number as relative to the items available in the associated LINK. In the DRIVER example, upon reading the \$A card, AURA interprets the second one on the DRIVER card as meaning " a maximum of one per TRUCK." On the other hand, the R/T OP example above, which had ENT MAX = 1 but no \$A card, is interpreted as "a maximum of one person can be assigned to this job, regardless of any other LINKS."

BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BARTARIA BA

F. SUBCHAINS

Some jobs require more than one link subtask to be performed in order to achieve any results. For example, the crane AND the crane operator AND the rigger jobs must be done to have crane capability. In AURA, the construction used to show an AND relationship between links is the SUBCHAIN. The subchains used for the example unit are shown in Figure 8. The inputs used to generate them are shown in Figure 9.

Note that subchain names must be of the form *N, where N is an integer between 1 and 26.

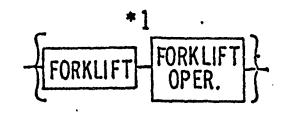
G. ORLINKS

Situations occur in which a choice can be made between two or more procedures in order to accomplish a task. For example, a unit might choose between radio OR telephone communications to receive a message. In AURA, the exclusive OR relationship between procedures is input via the ORLINK construction. The orlinks used for the example unit are shown in Figure 10. The inputs used to generate them are shown in Figure 11.

Note that orlink names must be of the form +N, where N is an integer between 1 and 23.

H. Compound Links

Another possible relationship between combinations of subtasks is that in which each combination independently contributes a part of a larger segment of work. In the example unit, the crane team contributes 25 percent to the overall truck loading, while the light item loading (forklift team or handloading) contributes 75 percent. This relationship, in which each procedure contributes an additive part to a larger task, is modeled in AURA as a COMPOUND LINK. The compound link used for the example unit is diagramed in Figure 12. Notice that the compound link is made up of subchains, links, and orlinks described in the preceding sections. The inputs used to generate the compound link are shown in Figure 13.



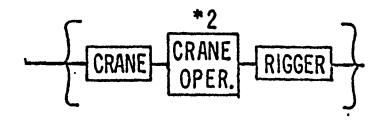


Figure 8. SUBCHAINS from the Example Case

SUBCHAINS
*1, FKLFT, FKLFT OP
*2, CRANE, CRANE OP, RIGGER
END

Figure 9. SUBCHAIN Input for the Example Case

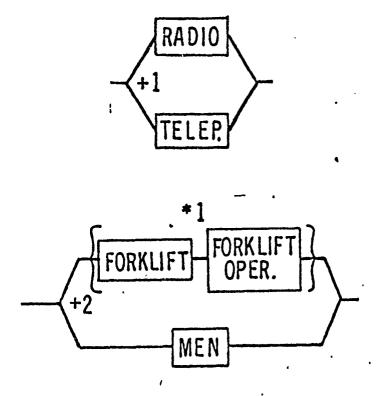


Figure 10. ORLINKS from the Example Case

ORLINK +1, RADIO, TELE +2, *1, HANDLOAD END

Figure 11. ORLINK Input for the Example Case

*1 FORKLIFT FORKLIFT OPER. *2 CRANE CRANE RIGGER *2 CRANE OPER.

Figure 12. COMPOUND LINK from the Example Case

COMPOUND LINK
!LOADING TECHNIQUE
+2, 0.75
*2, 0.25
END

Figure 13. COMPOUND LINK inputs for the example case

Note that the compound link name begins with an exclamation sign (!).

I. CHAINS

Finally, the various functions of a unit must be combined into one or more overall procedures in order to accomplish the unit mission. This final, overall combination is in the form of a series of ANDs. In the example case, the unit must have communication equipment AND communication people AND loading capability AND a truck to load AND In AURA, this final compilation of major functions is called a CHAIN. As shown in subsequent sections, a unit may have several chains which are simultaneously operant (AURA chooses the most effective) or sequentially operant to model mission changes with time. However, for this initial example, only one chain was 'needed; it is shown in Figure 14. The inputs to create the chain are presented in Figure 15.

CHAINS
R/T OP, +1, !LOADING TECHNIQUE, TRUCK, LOADMSTR
END

Figure 15. CHAIN input for the example case

Note that chains need no name. In runs involving more than one chain, results are output by chain in the order of input.

J. Comments on Functional Structure

Since the performance of, and relationship between, individual tasks is one the most complicated facets of any joint human venture, it is inevitable that a realistic, yet general, tool for modeling a unit must itself appear complicated. The approach taken in constructing the functional structure and associated optimization portions of AURA was to isolate and quantify subtasks, and then describe the relationship between them. This approach appears to fit well with the way that unit personnel think of their units. We have therefore found it easy to model units using information gathered through asking field experienced people to answer straightforward questions:

- 1. What tasks were done in your unit?
- 2. Who did them?
- 3. How well/and how fast?

Figure 14. The Initial CHAIN for the Example Case

- 4. What was the task flow, i.e., where did a job normally start? Where did it go from there? etc.
- 5. Are there variations on the above?

The answers to these questions can be put straight into parameters for links, subchains, etc. A bonus in this approach is the intuitive shape of the result: the chain in Figure 14 "looks like" the operation of the unit.

K. Control Instructions and Final Runstream

The final inputs for the example case are those that set the mode to DEBUG (described in the introduction to Section II), and input a heading for the output. The GO card informs the code that all input has been received and the analysis can begin. After completing the analysis, AURA again returns to the runstream for further instructions. The STOP card indicates that no instructions follow and that the file closing and run termination routines can be called.

The entire runstream for the example case is presented in Figure 16.

L. Execution of an AURA Run.

Currently, all AURA runs are done in 'batch' mode, i.e., with all instructions and data assembled before execution of the program. It is quite convenient, at most computer facilities, to assemble the runstream (Figure 16) in a file, using local editing procedures. Such a file can then be attached to AURA runs. To facilitate this process, the AURA code begins by reading, from INPUT, the name of the file containing the runstream. Optionally, it will also read a comment line which is to be printed at the top of output. It then transfers all input READs to the named file until the program stops.

Although the executive language used by each computer manufacturer is different from all others, a generic example of an execution stream can be given (Figure 17).

<Executive command section>
ATTACH runstream with (local) FILENAME
EXECUTE AURA
<Input data section>
FILENAME
Comment for addition to Heading

Figure 17. Generic Execution STREAM

III. ORGANIZATION AND CONTROL OF OUTPUT

Analyses involving the AURA methodology can generate prohibitively large amounts of various kinds of data. It is possible, for example, to

```
#THIS IS THE INPUT FOR RUN #1
REPERTOIRE
FGS
TRUCK, TRK
FKLFT
CRANE, TRK
RADIO, TALKY
AL ARM, TALKY
TELE, TALKY
R/T OP, PERSONNEL
LOADMSTR, PERSONNEL
DRIVER, PERSONNEL
MEN, PERSONNEL
FKLFT OP, PERSONNFL
CRANE OP, PERSONNEL
RIGGER, PERSONNEL
# ANY RUN WHICH FMPLOYS WEAPONS ( REF. OTHER EXAMPLES IN THIS REPORT )
# MUST LIST WEAPON NAMES AFTER A "WEAPON" CARD IN THE REPERTOIRE
     # THIS END CARD IS ESSENTIAL
# NOTE THE USE OF THE # SIGN TO INPUT COMMENTS TRANSPARENT TO THE CODE
DEPLOYMENT
R/T \oplus P, 0.90., 1.91,1,2,1,1,0
RADIO, 0.,0.,1.,1,1,1,1,0
ALARM, 0.,0.,1.,1,1,1,1,1,0
TELE, 0., J., 1., 1, 1, 1, 1, 1, 0
MEN, 0.,1.,2.,1,1,1,1,1,1
TRUCK, 20.,50.,0.6,1,1,1,1,1,0
DRIVER, 20,,50,,0,6,1,1,3,1,1,3
FKLFT, 20.,50.,1.,1,1,1,1,1,0
FKLFT DP, 20.,50.,1.,1,1,3,1,1,0
HANDLOAD, 20., 50., -5., 1, 1, 4, 1, 1, 0
                                    # THIS IS A DUMMY LINK.
# THE - SIGN ABOVE IS OPTIONAL. SINCE HANDLOAD ISN'T IN THE REPERTOIRE.
# THE CODE KNOWS HANDLOAD IS A DUMMY LINK.
LOADMSTR, 20., 30., 1., 1, 1, 5, 1, 1, 0
MEN, 20, 80, 2, 1, 1, 1, 1, 1, 1, 1
CRANE, 60, 60, 1, 1, 1, 1, 1, 1, 0
CRANE OP,60.,60.,1.,1,1,3,1,1,0
TRUCK, 60., 50., 0.4, 1, 1, 1, 1, 1, 0
DRIVER,60.,60.,0.4,1,1,3,1,1,0
RIGGER, 60., 60., 1., 1, 1, 4, 1, 1, 0
MEN, 80.,0.,2.,1,1,1,1,1,1
END
LINKS
DRIVER, 1., 1.
$A, TRUCK
SPERSONNEL
$T,15.
$E,.85
RADIO, 1.0
TELE,1.0
```

Figure 16. The Initial Runstream for the Example Case

```
TRUCK, 1.0
CRANE 0P,1.0,1.0
$A, CRANE
SFKLFT OP, RIGGER, LOADMSTR
$T, 10., 5., 5.
$E, 0.8, 0.5, 1.0
RIGGER, 1.0
$PERSONNEL
$T, 5.
$E, 0.6
R/T OP, 1.0, 1.0
$LOADM STR, PERSONNEL
$T,20.,15.
$E, 1.0, 0.8
FKLFT, 1.0
CRANE, 1.0
FKLFT OP, 1.0, 1.0
SA, FKLFT
SCRANE OP, LOADMSTR, PERSONNEL
$E,0.9, 1.0, 0.2
$T, 10., 5., 5.
LOADMSTR, 1., 2.
$M,75
HANDLΩAD, 5.0, 65
$M,1.0
$PERSONNEL
$E,1.
$T,5.
END
SUBCHAINS
*1, FKLFT, FKLFT OP
*2, CRANE, CRANE JP, RIGGER
END
ORLINK
+1, RADIO, TELE
+2, *1, HANDLDAD
COMPOUND LINK
ILDADING TECHNIQUE
+2, 0.75
*2, 0.25
END
CHAINS
R/T JP, +1, !LOADING TECHNIQUE, TRUCK, LOADMSTR
END
MODE
DEBUG, ON
END
HEADING
FIRST EXAMPLE RUN - DEBUG
END
GO
STOP
```

Figure 16. The Initial Runstream for the Example Case (con't)

print out the impact point of every incoming round: for 100 replications of a study involving a heavy artillery barrage, the impact point print-out alone could consume 10,000 pages of computer paper. For this reason, AURA is equipped with print options (see the OUTPUT instructions in Appendix A), by which the user selects the entities he wishes printed. When no options are invoked, the defaults in AURA result in a moderate amount of print-out which includes a consolidation of the inputs and a report of the final, average results at each time point. For this first example case, no output options were invoked.

It is also useful to have a feeling for the organization of the output. That organization is outlined in Table 1.

TABLE 1. OUTLINE OF AURA OUTPUT

I. CONSOLIDATION of INPUTS

- A. Mnemonic control cards
- B. Heading
- C. Event-table and miscellaneous
- D. Weapons
 - 1. Names, yields, delivery errors
 - Dispersion pattern envelope (TOXIC rounds)

E. Assets

- 1. Names, numbers, and other accounts
- 2. Degradation information
- 3. Reliability and repair data
- F. Link Definition Table
- G. Link-Assets Substitutability Matrix
- H. Subchains, Orlinks, Compound Links, and Chains
- I. Chain Plots
- J. Deployment Table
- K. Deployment Plots

II. Intermediate Results

As requested:

- A. Weapon actual ground zeroes
- B. Casualties, concaminations

- C. Dosages
- D. Repairs begun, completed
- E. Asset allocation decisions, shortcomings
- F. Replication summaries

III. Final Results vs. time

- A. Effectiveness, statistics, and distribution
- B. Functional groups
 - 1. Survivors
 - 2. Dosages
 - Contaminations
- C. LINK Result Table
- D. CHAIN Results

IV. At-End Averages

Certain at-end statistics, such as repair results, reliability failures, etc.

V. Repeat of Lethality, Vulnerability, and Dissemination Files

In addition, outputs may contain a number of information, warning, or error messages.

IV. OUTPUT #1

A. Mnemonic Control Cards

Figure 18 contains the mmemonic control card output from the example case. This section is printed during the actual reading of input. (All other output follows the initial pre-processing of input data.) This procedure results in an audit to the input processing: if a fatal error occurs during input, the user can immediately tell which input data type caused the problem.

Comparing Figure 18 with Figure 16, one notes that the numbered lines in the output correspond to the mnemonics in the input. Notice, too, that informative warning lines were inserted, all prompted by the use of the dummy link HANDLOAD. First, during deployment, the input routine found that HANDLOAD had not been identified as an asset. AURA therefore assumed that it was a dummy link. Since the LINK input had not yet been processed, the deployment routine initiated the dummy link definition and printed the informative warning.

DEPLAY

DUMMY LINK CREATED - ASSUMING DUMMY LINK FNCTNL GRP REPERTUINE 93ÉS NOT INCLUDE HANDLOAD
*** WARNING *** LINK HANDLOAD FIND FG DY LINK NAMED HANDLOAD COULD NOT #i+i+ SNINGVM *****

SUSCHA URLINK ULAMES

CHAINS WJOt HEADIN 04 10 0 F 20 C

Figure 18. The Mnemonic Control Card Output from the Example Case

Likewise, during link input, AURA recognized that HANDLOAD is not a link which is named after its primary performer; this resulted in the message that HANDLOAD does not appear in the REPERTOIRE, and that a dummy link is assumed. The match up between links and deployment is made after all inputs have been read. Thus, the order of these inputs is immaterial.

B. Heading, Event Table and Miscellaneous

Figure 19 contains the heading, event table, and miscellaneous information. Since this run, in the DEBUG mode, involved no events (incoming warheads arriving, reconstitutions, etc.), there are no entries in the event table.

The columns of the event table give the following information as appropriate for each particular event.

EVENT number

TIME of event occurrence

EVENT TYPE - such as "lethality" or "reconstitution"

OPERANT CHAIN - the unit functional structure available to the commander at this event time

WPN TYPE - weapon number (lethality events only)

RECUPTIME - time for substitution (reconstitution events only)

NO. RNDS - number of rounds in volley (lethality events)

+/- RAM - externally applied losses or reinforcements

DGZ - designated aimpoint (lethality events)

TLE - target location error (TLE change event)

VOLLEY ANGLE - volley parameters (lethality event)

VOLLEY LENGTH - volley parameters (lethality event)

JEVNT - a programmer's code number

C. Assets

Since no weapons were included in the REPERTOIRE, there are no weapons listed in the output. In accord with Table 1, the next outputs pertain to assets. Figure 20 lists the names and associated data for all assets listed in the REPERTOIRE. The columns of the asset table give additional (processed) information:

ID - internally assigned asset number

VRS - versatility, jobs this asset can do

ACDUNTER NUMBER 1	
COUNTER NUMBE	
COUNTER	U48 F
	COUNTER

	5999. 111	VOLLEY
	666	VOLLEY
		2
•	3999.	DGZ/TLE
*	2999.	×
	1999.	NO.RNDS/ +/- RAM
FIRST EXAMPLE RUN - DEBUG ************************************	START =	WPN TYPE/ NO.RNDS/ RECUPTINE +/- RAM
*	SEEDS AT	CHAINS
FIRST EXAMPLE RUN - DEBUG	(((RANDOM NUMBER SEEDS AT START =	FVGNT
1MPL5	÷:	TIME
FIRST EX		EVENT

>>>>>>> INCTHING FIRE JIMECTION (MEASURED CCW FROM THE TARGET X AXIS) IS 0.0 DEGREES «««««««
>>>>>>> DOWN WIND OTRECTION (NEASURED CCW FROM THE TARGET X AXIS) IS 0.0 DEGREES «««««««

100.0

Heading, Event Table and Miscellaneous Information from the Output Figure 19.

NAMFS	1.CO TRUCK. TRK	ドストイン・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	CRANE, TRK	RADIO TALKY	ALARS TALKY	TELE, TALKY	R/T OP, PERSONNEL	LOADMSTR, PERSONNEL	DRIVER, PERSONNEL	MEN. PERSONNEL	FKLFT OP, PERSONNEL	CRANE UP, PERSONNEL	RIGGER, PERSONNEL
 C	1.00	1.00	1.60	1.00	2.00	1.00	1.03	1.60	1.90	6.00	1.00	1. Go	1.00
EXPND RT										•			
GRNUL	1.00	1.00	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.30	1.00	1.00
CAISU PRSECHMY/AN GRNUL	1.00/ 1.3%												
1 V L	-		H	-i -	7	rd (0 (D (· ·	→ <	a (5 (S.
٠ ٢	- -1	⊷ ,	 1 :	-	O	- i 1	ΛI	<i>-</i> د	r, ı	η,	٥,	c -	0
1 :	-	~	٠ (٢٠	J	'n,	0 1	٠ ،	r (-4 C		

Figure 20. Names and Associated Data for all Assets

- IVL a nuclear vulnerability code,
 (0 = personnel, 1 = no data)
- CNTBU chains in which this item can be used in a contaminated state
- PRSFC maximum and minimum persistence factors (pertain to chemical contamination)
- GRNUL granularity, a user option to control assignment step size (not often used)
- EXPND RT expenditure rate for expendable items
- NO. number of items deployed

Although this run did not involve the employment of any toxic chemical weapons, the individuals were given chemical protective (MOPP) postures (viz the last number on each deployment card - see Appendix A.) Therefore, the degradation by MOPP table is printed.

D. Link Definition Table

Figure 21 contains the parameters used to model the subtasks, as described in Section II. E. The only additional, processed data in the table are:

- HOME ID the internal number of the asset for which the link was named
- INLNK a cross-reference of how many items were deployed to serve in each link, and
- MAX IN the effective number of assigned assets for maximum task effectiveness
- MAX EFF the maximum task effectiveness
- MIN IN the effective number of assigned assets below which task effectiveness is at its minimum
- MIN EFF the minimum task effectiveness
- MAX INLNK The maximum number of individuals (regardless of individual effectiveness) which can be assigned to a task
- ASSOCIATED LINK A different task which influences MAX INLNK for this task

ALTERNATION OF THE PROPERTY OF

NOT IN LINK - the number of items deployed which have no primary job.

Note that the dummy link is designated as occupied by a negative number of items, in accord with Section II. E.

LNK	NAME		INLNK	X Z H	×u	ZZ HH E	MIN EFF(2)	MAX INLINK	ASSOCIATED Link
	•		•	•	•	•	•	•	• • • • • • • • • • • • • • • • • • • •
~ 4	A	0	-5.00	5.00	65	1.00	0	UNLMTD	NON
~	RIVE	O	1.00	1.00	166	00.0	C	1.00	TRUCK
m	RADIO	4	1.00	1・CC	160	33°C	ດ	UNLATO	NON
4	TEL	S	٦. ١.	1.00	100	00.0	ဂ	UNLMTD	NO.
sv.	RC C	н	1.00		100	0.07		UNLATO	NONE
9	RAR		1.00	1.00	100	00.0	¢.	1.00	CRANE
~	RIGGER	73	1.70		100	2.00	0	UNLATD	NON
∞	77 0	2	こう・イ		100	22.7	9	1.00	NON
0	X F F	7	1.30	1.0C	160	50.0	æ	UNLATO	E C C C C C C C C C C C C C C C C C C C
10	RA 2	m	•	1.00	301	30.00	c	UNLMTD	UZOZ.
	KLFT	11	•	1.00	100	30.0	<>	1.00	FKLFT
12	LOADMSTR	80	•	1.50	166	00.0	75	2.00	u Z C Z
	NOT IN LINK		8.CC				ı))	!

Figure 21. Subtask Parameters

E. Link - Asset Substitutability Matrix

Figure 22 contains the next output, the link- substitutability matrix. For each functional group, the links in which it can serve are shown. The letter H stands for "home," the primary job of the asset in which it can immediately serve with 1.0 effectiveness. An entry of the form time/effectiveness/order indicates a job into which the asset can substitute in the time and with the effectiveness shown. (The "order" number indicates the order in which the user specified the substitutes and is used to choose one particular substitute over another if all other quantities - versatility, effectiveness, etc. - are equal.) Finally, a blank entry shows that no substitution is possible.

F. Subchains, Orlinks, Compound Links, and Chains

Figure 23 contains a recapitulation of the inputs for subchains, orlinks, compound links, and chains, as described in Sections II. F, G, H, and Γ .

G. Chain Plots

Figure 24 shows a line-printer depiction of the functional structure (Figure 14). In this figure, different kinds of horizontal lines of characters are used to delineate the various constructs: asterisks (*) for subchains, plus signs (+) for orlinks, and exclamation points (!) for compound links.

H. Deployment and Deployment Plot

Figure 25 contains a recapitulation of the deployment information. (The kill criteria and posture codes will be explained when used in the following sections).

Information listed is:

ID, ASSET - ID number and name of asset or dummy link deployed at this point

LNK - The task being done at this point

XTAR, YTAR - Coordinates of the point

HOWMNY - Number of assets deployed

KCAT - Conventional Kill Criteria Code

NKCAT - Nuclear Kill Criteria Code

TKCAT - Nucle, v Posture Code

PSTR - Conventional Posture Code

NUCVR - Nuclear Posture Code MOPP - MOPP Posture Code

LNKFG

KEY: SUSST. TIME/SURST. EFFECTIVENESS/SUBST. URDER-READ-IN

	·· /	. HAYOLO . DRIVER . AO .		. RADIO . TELE	-		. TRUC	. TRUCK . CRANE . RIGGER . R/T OP . FKLFT . CRANE OP	••	RIGGER	. R/1 GP	FKLFI	. ·		• FKLFT
ASSET	; -	•	2	m	•	4	•	•	• 9	~			•	10	it
1 TPUCK	^		 		-	i ! ! !	H		-				-		
2 FKLFT	^				_	-			-		-	I		_	
3 CRANE	^		~	_										_ _	
4 RADIO	^		-	T						-7	-			_	
5 ALARY	^	-												_	
6 TELF	^	-			-	I	_				-			_	
7 R/1 OP	^	5/1.9/11	15/ 085/11				-		_	5/.60/1	I		-	_	57.20/3
8 LOADASTP	^	5/1.0/110	15/ 685/11		_	-	_	1 5/1.	5/1,0/31	5/.60/1	120/1.0/1				5/1.0/21
9 DRIVED	^	5/1.0/11	I		_		_			5/ • 60/1	115/080/2			_	51.2013
TO MEN	^	5/1.0/11	157.85/11	•			-			5/.63/1	115/.80/2		-	_	5/020/3
	^	5/1.0/11	15/.85/11					110/080/11	17/71	5/ • 60/ 1	115/080/2			_	I
12 CRANE UP	^	5/1.6/11	15/ 85/11			-		=		5/ 60/ 1	115/.86/2		-	_	110/.90/11
13 RIGGER	^	5/1.0/1115/.85/11	15/.85/11	-		-	***	1 5/.50/2		I	H 115/.80/21	••		_	5/1.20/3

The Link-Asset Substitutability Matrix from the Output Figure 22.

```
LINKS IN EACH SUBCHAIN
SUBCHAIN LINKS
          9
   *1
               11
   *2
         10
BRANCHES IN EACH ORLINK
+++++++++++++++
ORLINK
          BRANCHES
   +1
         *1
   +2
COMPOUND (CP) LINKS
*****
CPLINK
                     CP PARTS
1LDADING TECHNIQUE . +2
                                         *2
                                         ( .25)
                    ( .75)
SEGMENTS IN EACH CHAIN
                     CHAINS
SEG \ 1
     . R/T OP
     . +1
  3
     . ILDADING TECHNIQUE
     . TRUCK
  5 . LOADMSTR
```

Figure 23. Recapitulation of Subchains, Orlinks, Compound Links and Chain Inputs

```
R/T OP
  11
  11
CICAR
           TELE
  111111111111111111111111111111
  11
                          .25
  . 75
                          11
                         11
             !!
            HANDLO
                        CRANE
** * * *
  11
            AD
FKLFT
                         11
              !!
                         !!
              !!
                        CRANE
  11
              11
 11
              !!
                        OP
FKLFT
                         1.1
                          11
                        RIGGER
  1!
                          !!
  11
 11
TRUCK
 11
 11
LOADYS
TR
  11
```

Figure 24. Line Printer Depiction of Unit Functional Structure

0EPL(DYMEN ****	- #									
•	ID	AS.	LNK	XTAR	YTAR	HOWAN	CAT	¥	•	STR Z	VR MOPP
•											
H	~	R/T 0P	80	0.0	G•3	j. 0c	, rd		ر د	-	0
~	\$	RADIC	m) • O	٠ ت	1.00	Н	-		,,	1 0
m	ī.	ALARM	95	0	0	1.00	7	7	~4	~	0
4	\$	TELE	4		ر د	1.00	-	-	-4	-4	1 0
ĸ	10	3 EN	95	_	1.1	•	~	7	_	7	7
9	-4	TRUCK	5	ئ 25°	50.0	99.	~	-	-	-1	1 0
~	0	DRIVER	2	•	٤	.	-4	··•	m	-4	0
80	2	FKLFT	0	_	50.0	•	H	-	_	7	0
Φ	11	FKLFT OP	11	20°	50.0	1.00	~		3	~	0
10	C.	HANDLOAD	-	_	÷	•	-4	7	.	-1	1 0
11	ဆ	\$	12	_	٤	•	~	#1	72	-4	0
12	12	NU E	95		•	•	rd	7		-1	1
13	S	ALARM	95		•	•	~	rd rd	-	-	1
14	67,	CRANE	្ន	90.0	Ö	٠.	-4	- -	_		1 0
15	12	CRANE OP	9		•	1.60	-	~	e	-	1 .0
16	-	TRUCK	S			04.	-4	7		-1	1
17	Ø		2	_		34.	~4		m	~	0
18	13	RIGGER	~	0°09	60.09	0	~	7	÷		1
0	13	7LT	95	•	•	2.00	-4		_		7
!						•					

Figure 26 is a line printer plot of the deployment. Functional group items are represented by their (2-digit) ID numbers. Co-located elements are depicted side-by-side. The co-location problem, plus the coarse granularity of a line printer, results in these deployment plots being unavoidably distorted. The user is therefore warned to use these plots as quick checks of data, NOT as scaled drawings of the battle-field. (Note: Utility graphics programs do exist to produce scaled drawings of AURA inputs and cutputs.)

The deployment plot also shows two directions relative to the deployment coordinates, viz, the incoming fire and downwind directions. (Use of these directions are discussed in subsequent sections.) In these depictions, the incoming fire direction is from the AAs toward the BBs; the wind blows from the YYs to the ZZs.

I. Summary of Output # 1

Printing out of the deployment plot completes the input recapitulation (Section I in Table 1). Since RUN #1 was in the DEBUG ("process input but do not execute") mode, there is no further output. A complete listing of the outputs generated by RUN #1 can be found in Appendix B.

The runstream (Figure 16) had been corrected before being run. For that reason, the only error messages printed were the informative warnings described in Section IV A. There are, however, over 150 different checks that are made on the correctness, completeness, and consistency of the input data. Depending on the severity of the irregularity involved, AURA prints informative, warning, or (fatal) error messages. When possible, processing then continues until all input data has been diagnosed.

V. RUN #2 - EQUIPMENT FAILURE

A. Failure Inputs

In RUN #2, the DEBUG option is removed and the first operational runs are made. In this run, a loss mechanism, viz, mechanical failure of forklift and crane, is also added; and excursions are done to show the sensitivity of results to the failure rates.

The failure of items is initiated by specifying failure rates for them. As shown in Appendix A this is done via the FAILURE RATE option. AURA allows three levels of failure, called light, medium, and dead. These levels allow the modeling of repairs that require different assets and repair times. Since repairs are not introduced in RUN #2, the different levels have no effect in the output. However, levels will be specified in anticipation of RUN #3.

For this run, it is assumed that only forklifts and cranes have significant failure rates, with mean time between failures (MTBF) expressed in minutes:

Figure 26. Line Printer Plot of the Deployment

Annal Matheway of the comment of the state o

CRANE: MTBF = 1080

FORKLIFT: MTBF = 720

(80% LIGHT, 10% MEDIUM, 10% DEAD.)

B. Reconstitution Events

The AURA effectiveness values describe the ability of the modeled unit to do a mission. It follows, therefore, that to compute effectiveness requires AURA to go through the process of taking an inventory of assets and allocating them to the subtasks. This process, referred to as reconstitution, is performed at specific times, as controlled by the user.

Since a major purpose of AURA is to measure the effects of events upon a unit, the user generally wants reconstitutions and evaluations to take place at specified times relative to certain events, rather than at specific "clock" times within his scenario. (The primary example of such an event is a lethality event, the arrival of a threat warhead.) Thus, rather than asking for effectiveness at 100, 200, and 1000 minutes into the scenario, the user is more concerned with the effectiveness at 100, 200, and 1000 minutes after the arrival of a hostile warhead.

To facilitate specifying relative time points, AURA has the INTERNAL RECONSTITUTION TIMES input (see Appendix A). The INTERNAL card is followed by times; these times are automatically interpreted as time intervals after every lethality event. The AURA preprocessor inserts reconstitution events into the event table (agenda) for the scenario at appropriate intervals after every lethality event. Note, however, that the occurrence of a new lethality event interrupts any time intervals from a preceding event. Thus, if the time intervals were 10 and 100 minutes and lethality events occurred at 50 and 75 (clock) minutes into the scenario, reconstitutions would occur at times 60, 85, and 175: The reconstitution at 150 (100 minutes after the first lethality event) is eliminated by the intervening lethality event at 75.

For this run, time intervals of 10, 60, 120, and 180 minutes were chosen.

Notice, however, that this run did not involve the arrival of hostile warheads. It is therefore necessary to specify the time points, in "clock minutes," from which to measure the time intervals. To do this, AURA provides the user with the RECONSTITUTION option. As shown in Appendix A, the RECONSTITUTION card is followed by (clock) times. AURA treats each time as an event from which to measure time intervals and insert reconstitution events.

For this run, reconstitution points were specified every three hours (0, 180, 360, 540,...). The last point, at 1260, causes the last event to be inserted at clock time 1440, (180 minutes after 1260), resulting in a total scenario of 24 hours.

C. Replications

The failure of items in AURA is modeled using a Monte Carlo technique: random numbers are drawn against (exponentially distributed) failure probabilities. It is necessary, therefore, to run a number of interactions in order to draw a sufficient number of random numbers to accurately reflect the failure distribution. This need for replications applies to all AURA runs involving Monte Carlo modeled phenomena, especially those involving the arrival of threat warheads. The number of replications needed to confidently probe a distribution is a subject of considerable study and will not be discussed here. However, the user will note that the standard deviation and frequency distribution of results, two quantities of use in establishing the confidence level of the mean results, are standard AURA outputs.

For this run, 50 replications will be made.

D. Runstream for RUN #2

The total runstream for RUN #2 is shown in Figure 27. The dashed line delineates data added for this run. In addition, note that the MODE-DEBUG command was removed.

E. Output from RUN #2

E.1. Output from RUN #2. The output for RUN #2 is shown in Appendix C. The first eight pages, which contain the repeat of the inputs (Section I in Table 1), is very similar to the output from RUN #1 (Appendix B). The two additions to the RUN #1 output are the expanded event table and the reliability-type failure data, shown in Figure 28.

The event table is read as follows: the first two columns give the event number and time; the next column gives the event type. Here, "INITIAL" is a reconstitution event inserted by AURA to establish the initial condition (allocations, deployments, etc.) for the unit. "USER RCNST" is a (clock) time point specified by the input, from which to measure internal reconstitution time intervals. Three "RCNSTITUTE" events follow, spaced at 10, 60, and 120 minutes; these events were inserted by AURA, as discussed in Section V. B. It is at these RCNSTITUTE events that AURA will optimize the allocation of surviving assets and evaluate the unit effectiveness.

Following the event column, the event table gives specific data pertaining to each event. The columns, therefore, may contain different parameters, depending on the event type. For this run, only two data are given "OPERANT CHAINS" indicating the chains (combinations of tasks) which are available to the commander for performance of the mission: here, only one chain (#1) is available. The next column gives the amount of time since the most recent attack, which is a measure of time to reconstitute. Here, since no attacks have been specified, the RECUPTIME equals the clock time.

(Three other columns, marked "JEVNT," are included on the output. These contain internally generated pointers to data of interest to AURA programmers only.)

```
#THIS IS THE INPUT FOR RUN #2
REPERTOIRE
FGS
TRUCK, TRK
FKLFT
CRANSITRK
RADID, TALKY
ALARM, TALKY
TELE, TALKY
R/T OP, PERSONNEL
LOAD*STR, PERSONNEL
DRIVER, PERSONNEL
MEN, PERSONNEL
FKLFT OP, PERSONNUL
CRANE OP, PERSONNEL
RIGGER, PERSONNEL
# ANY RUN WHICH EMPLOYS WEAPONS ( REF. OTHER EXAMPLES IN THIS REPORT )
# MUST LIST WEAPON NAMES AFTER A "WEAPON" CARD IN THE REPERTOIRS
     # THIS END CARD IS ESSENTIAL
# NOTE THE USE OF THE # SIGN TO IMPUT COMMENTS TRANSPARENT TO THE CODE
DEPLOYMENT
R/T DP, 0., C., 1., 1, 1, 2, 1, 1, 3
RADIT, 0.,0.,1.,1,1,1,1,1,1,1,1
ALARY, 0.,0.,1.,1,1,1,1,1,0
TELE, 0.,0.,1.,1,1,1,1,1,0
McNo Cooloo 2001,101,101,101
TRUCK, 200,500,006,1,1,1,1,1,1,0
DRIVER, 23., 50., 0.6, 1, 1, 3, 1, 1, 0
FKLFT, 200,500,10,1,1,1,1,1,0
FKLFT DP, 2(0,500,10,1,1,3,1,1,0
WANDLOAD, 20, 50, 5-5, 1, 1, 4, 1, 1, 1, 4 THIS IS A DUMMY LINK.
# THE - SIGN AROVE IS OPTIONAL. SINCE HANDLOAD ISN'T IN THE REPERTUIPE.
# THE CODE KNOWS HANDLAAD IS A DUMMY LINK.
LDADMSTR, 20.,80.,1.,1,1,5,1,1,0
MEN, 20,, 40,, 2,, 1, 1, 1, 1, 1, 1,
ALAPMa 20.0800010010101010100
CRANE, 6(., 6(., 1., 1, 1, 1, 1, 1, 0)
CRANE OP, 60.,60.,1.,1.,1.3,1.,1.0
TRUCK, 60, 60, 7, 4, 1, 1, 1, 1, 1, 1, 2
DRIVEP, 60., 60., 0.4, 1, 1, 3, 1, 1, 0
RIGGER, 67, 66, 91, 91, 1, 4, 1, 1, 0
MEN,80.,0.,2.,1,1,1,1,1,1,1
END
LINKS
DRIVER, 1., 1.
SA, TRUCK
SPERSONNEL
$T,15.
$5,.35
Col(CICAR
TELF, 1.0
```

Figure 27. RUNSTREAM for RUN #2

```
TRUCK, 1.0
CRAME 0P, 1.0, 1.0
$AJCRANE
SEKLET OP, RIGGER, LOADMSTR
$T, 10., 5., 5.
$E, 0.8, 3.5, 1.6
RIGGER, 1.0
SPERSONNEL
$T, 5.
$E, 0.6
R/T 00, 1.0, 1.0
$LDADMSTR, PERSONNEL
$T,20,,15.
$E, 1.0, 0.8
FKLFT, 1.0
CRANE, 1.0
FKLFT UP, 1.0, 1.3
$A, FKLFT
SCRANE OP, LOADMSTR, PERSONNEL
$E,0.9, 1.0, 0.2
$T, 10., 5., 5.
LOADMSTR, 1., 2.
$M,75
HANDLDAD, 5.0, 65
$M.1.6
$PERSONNEL
$E,1.
$T,5.
END
SUBCHAINS
*1, FKLFT, FKLFT UP
*2, CRANF, CRANE OP, RIGGER
DRLINK
+1, RADIO, TELF
+2, *1, HANDLDAD
END
COMPOUND LINK
ILDADING TECHNIQUE
+2, 0.75
*2, 0.25
END
CHAINS
R/T OP, +1, ILDADING TECHNIQUE, TRUCK, LOADMSTR
END
HEADING
SECOND EXAMPLE PUN - FAILURES
END
FAILURE RATE
CRANE, 1730.,.8,.1
FKLFT, 720., .8, .1
END
```

```
INTERNAL RECONSTITUTION TIMES

*THESE ARE THE TIME INTERVALS FOR RECONST., RELATIVE TO OTHER EVENTS
10.,60.,120.,180.
END
RECONSTITUTIONS

#THIS INSERTS DUMMY EVENTS TO ALLOW FIXING THE ABOVE INTERVALS
0.,180.,360.,540.,720.,900.,1030.,1260.
#NOTE THAT THESE ARE ABSOLUTE SCENARIO "CLOCK" TIMES, AS OPPOSED TO THE
#RELATIVE TIMES SPECIFIED AFTER THE INTERNAL CARD
END
REPLICATIONS
50
END
GO
STOP
```

Figure 27. RUNSTREAM for RUN #2 (con't)

		9	0	~	~	m	0	-	~	m	•	-	7 6) C	-	~	m	0	~	~	m	0	~	~	m	0	-	~	m (۰ ر	٠,	y r	η.	•					
ا ا		9	2	0	•	•	0	0	9	0	•	o (> c	•	• a	•	•	0	•	•	•	0	0	0	0	0	•	0	•	•	.	> (> <	•					
JEVNT		6	3	a	á	٥	•	۵	د.	•	•		.	٠.						0	_	_	_	_	^	•	_	0	•	•	9 (5 6	-					
		•	66	•	••	•	999	_	•	•	666		•	000				666	Ĭ	•	•	666		_	•	666	_	_		666	•	•	•	_	•				
E +																																							
VOLLEY LENGTH																																							
E Y																																						• 0	3
VOLLEY	•																																				MED.	100	.100
																																					E	•	
7																																					ITE	800	8 ċ o
																																					-	: •	•
062/11E Y																																							ভূ
290	'					•																															MTBTF		
																																			v	າ ₩	Y.	723	1090
×																																			1011			•	
PAH RAH																																			1	† *		•	
NG.RNDS/ +/- RAM	:																																	×	u	*		•	
																																			7.4	- * - *			
TYPE/ PTIME				g•00	3	00.5		3.0	240.03	C		000	3 6		66.0	60.0	000	,	0.0	6.63	90:3		800	ç.,	3.5		000	•	3		500	3	•	60.0	7 7 7	- * - *		- 14	<
KPN RG CU				10	ō	12		Ä	24	Č B		M	7	ŕ	52	900	999		730	78	40		910	96	102		1090	1140	150		1270	707	138	444	APTI	* *		X	ک
- W																																			-	4 #	FG	2	m
ERAN																																			u	ě	_	•	
												.																											
Lew		1	SCAST	rrure	TULE	TULE	SCN21	TULE	TUTE	TULE	CKY	RCASTITUTE		7	Ture	TOT	TUTE	CNST	TUTE	TUTE	TULE	SCH21	FOTE	TUTE	TUTE	CNS1	TUTE	TOTE	TULE	CNS	STITUTE		3101	נומוב					
EVENT TYPE		ILIN	SER	CNST	CNST	CHST	SER	CNST	CHST	CNST	SER	CHST	2	2000	CAST	CNST	CNST	SER	CNST	CNST	CNST	SFR	CNST	CNST	CNST	SER	CNST	CNST	CNST	SER	CAST	200	CNST	CNST					
•	•																																						
F17		ق	;	13.6	600	120.	180.	1001	246.	3 10.0	360.	370,03		540	5500	630.0	660.	725.1	730.	790.	840.1	9:24.6	910.	7.096	020.	080.1	1066	140.0	200.	260.1	1270.0		380.	***					
ENT	•											11.														7	_	-	_	-		٠,		_					
ű,											, ,	 ,	~, ·			. ~	_	-	_	.7		,	••	٠,	.,	••	••	·			.,, (۰، ۲		**					

ROSSIVATOROS ASSOCIATOROS ES CONTROL DE CONT

Figure 28. The Expanded Event Table and Reliability-Type Failure Data for RUN #2

<u>E.2. Results.</u> After printing the consolidation of inputs, AURA begins replications through the event simulations. As listed in Table 1, many intermediate results are available at this point. However, in RUN #2, no intermediate outputs were turned on. Therefore, following the consolidation of inputs, the RUN #2 output begins a report of results.

First, to assure attention to warnings that were generated in the run, the results section is headed by a repeat of all warnings. Next follows a major output, the effectiveness vs. time, as shown in Figure 29. The left-most column gives the (clock) time points, which corresponds to the RCNSTITUTE points in the event table. At each time point, the effectiveness - averaged over 50 replications - and the standard deviation in the average are given. One notes that the effectiveness begins at 1.0 and steadily decreases, ending at 0.63 by time 1440. These monotonically decreasing results, which are plotted in Figure 30, reflect the kind of behavior to be expected in a system with failures but no repair.

As shown in Figure 29, the effectiveness versus time output also includes the distribution of results at each time. This output records the number of interactions resulting in effectiveness values falling within the listed ranges. Thus, the distribution output shows whether the average effectiveness resulted from a spread of results, a single cluster of results, or multiple clusters. In the present case, it appears that the results indeed cluster about the average. One notes, however, that no results fall below 0.40. As will be apparent below, this results from the availability of the HANDLOAD alternative to provide some loading capability even when both FKLFT and CRANE have failed.

The next output, shown in Figure 31, is the asset survivor table, averaged over the 50 replications. As expected, the average number of FKLFTs and CRANEs decreases, with a faster decrease in FKLFT reflecting its shorter mean time between failures (MTBF).

The next output is the link summary table. This table reports, where applicable, six results for each link for each reconstitution time:

- 1. Number of replications in which the link was used.
- 2. Number of replications in which the link was weak due to lack of assets.
- Number of replications in which the link was weak due to limited number allowed in link.
- 4. Number of replications in which the link was 0 in a compound link, and thus not used at all.

*** 66660	TIVENES	EFFECTIVENESS VS. TIME	*** 3K1			μ	VOREICERCY	01577710	EDEOUENCY DISTRIBUTION OF DECILIAS	3£ 1133g					
TIME	E F F	EFF (CTIVE 46 SS	E SS	100	66-96	. 69-08	70-79	69-09	50-59	64-04	30-39	20-29	10-19	1-9	•
3.00	2.1	-/+	300	56	0	0	0	0	0	0	0	9	9	0	9
10.00		-/+	.005	54	3	0	-	0	0	0	0	0	0	0	0
60.00		-/+	600	47	ა	>	m	9	3	Ċ	0	0	•	Q	0
120,00		-/+	315	**	8	0	'n	٥	0	-1	0	0	0	0	0
190.00	66. 0	-/+	•018	37	0	0	12	0	,	-1	0	0	•	o	٥
240.34		-/+	916	32	0	0	17	0	0	-	0	၀	J	•	0
300, 30		-/+	.021	3.5	c	0	17	0	0	7	0	0	0	0	0
373.00		+	324	5 ¢	¢	9	19	ပ	9	'n	0	•	ø	0	9
420.00		-/+	324		9	Ö	5 C	o	o	ĸ	0	o	0	0	0
440,00		-/+	724		0	O	22	0	o	ĸ	Ø	0	•	0	0
55,000		+/-	025		O	3	23	0	0	•	0	•	3	0	0
60%		-/+	324		9	၁	25	0	0	•	0	0	0	0	0
650.50		-/+	025	18	ဂ	9	24	3	9	€	0	0	0	0	0
730.30		-/+	0.25		0	Ö	97	o	o	0	0	0	ပ	0	0
780.00		-/+	970		9	ပ	25	0	0	11	٥	9	v	0	0
846.40		-/+	025	32	က	o	27	0	0	Ħ	0	0	J	0	9
910.00		-/+	• 123	30	7	0	30	0	0	12	0	0	ပ	0	0
960.30		-/+	125	7	ဂ	·v	30	3	o	13	0	۵	0	0	0
1020-06		+/+	123	7	0	0	30	0	0	13	0	0	0	0	•
1090,00		-/+	. 123	~	ກ	9	53	0	0	14	0	0	0	0	0
1140.00		-/+	.324	~	œ	đ	28	0	っ	15	0	o	o	٥	0
1200.10		-/+	920	7	0	3	28	•	•	12	•	9	9	0	3
1270.30		-/+	720	~	ז	3	23	0	0	16	0	0	0	0	0
1320.00		-/+	424	•0	0	3	27	0	0	17	0	0	•	0	9
1386。		->+	. 123	'n	3	ø	92	0	0	19	0	0	0	0	0
1440.00		-/+	322	•	7	•	27	.	0	19	•	•	.	0	0

AL PRINCIPAL PRINCIPAL DESIGNATION OF THE PRINCIPAL PRINCIPAL DESIGNATION OF THE PRINCIPAL PRINC

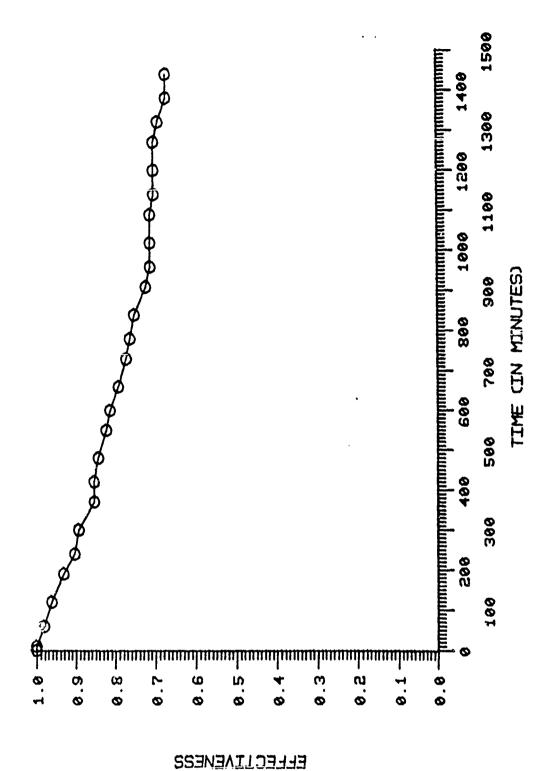


Figure 30. Plot of Effectiveness vs Time Data for RUN #2

٠	. RIGGER.	•	~	1:0	-;	1.0	1:0	7.0	1.0	1.0	1.0	1.0	1.0	1:0	1.0	1.0	1.0	1.0	1:0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	CR ANE		12	1.00	1.00	•	•	•	?	5	•	<u>ن</u>	()	•	•	•	•	Ç	•	?	<u>ي</u>	•	.	9	9	•	9	2	0
o *	KLFT .	•		1.06		ç	1.00	•	•	•	G	.3	0	1.00	÷	•	3	ဂ	•	3	3	1.00	G	G	1.00	3	1.00	1.00	1.00
ATION ******	EN P	•	<u> </u>	• •	6.03	<u>.</u>	•	0	3	ç	o	3	•	j	•	•	3	•	• •	•	0		•	·	9	•	•	9	•
REPLIC *****	RIVER.H	•	_	•	1.00	0	•	•	3	•	•	•	•	3	5	9	3	•	•	၁	Ç	3	5	0	3	0	1.30	4	0
INE FOR	OADMS.D	•		• •	1. oc	•	•	0	3	•				•	•	•	3	•	1.00	•	•	J	•	•	Ç	ټ	Ť	چ	0
- VS. T	/T 0P.L	•	7	1.00	1.00	1.00	•	1.00	1.00	1.00	1.00	1.CO	1.00	1.00	1.00	1.00	1.63	1 •.00	1.00	7.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00)) (1.00
ATED ::**	ELE .R.	•	9	• •	1.00	¢	•	•	•	•	•	•	•	•	•	•	•	•	*	•	•	•	•	•	•	0	ئا ، ماز	•	•
CONTAMIN*****	LARM .T	•	₹.	• •	2.00	÷	9	ņ	c	S.	ç	•	5	.5	•	3	c	ပ္	5	٥	3	္	c.	0	.3	•	4	•	•
********	ADIO .A	• •	•	1.00	1.00	•	•		•	•	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	1.10	•	•
1 * *	∞.	•	m		. 98																								
SURVIVORS *******	FKLFT .C.	• •	7	1.00	1.00	86.	06.	.82	•76	.72	•64	•64	. 52	• 60	.58	.54	• 50	***	• 42	• 34	36.	•30	• 30	.28	• 28	•26	•24	•25	.22
L GROUP S	TRUCK . FH	• •	ત	1.00	۲.	3	∵		0	Ć.	c.	0	3	Ċ.	•	δ	0	,3	C.	0	=	Ç	0	c		2	~	0	9
FUNCTIONAL	. T	• •	TIME	00.00	•	ė	20.	90.	400	60	70.	20.	80.	0	90	60	30.	80.	40.	101	60.	020	.060	143.	200-	270.	320,	380.	40.

STATES TO THE RESIDENCE OF THE PROPERTY OF THE

Figure 31. Functional Group Survivor Table for RUN #2

- 5. Number of replications in which the link was used in an "as available" (non-optimized) application.
- 6. Number of replications in which the link was weak when used "as available."

Figure 32 contains the link summary table for RUN #2. As an example, refer to the six lines for time 370. Reading across the first (number of uses) line, one sees ther four links (RADIO, TRUCK, R/T OP, and LOADMSTR) were used in all 50 replications. This is consistent with the number of non-zero replications reported in the results distribution table (Figure 29), and the observation that the structure of the job (chain) requires these jobs in every non-zero replication. The crane team members (CRANE, CRANE OP, and RIGGER) had only 39 uses: thus, in 11 replications, the unit was unable to load heavy items at time 370. The forklift team (FKLFT and FKLFT OP) had only 32 uses. Some light loading capability was still available, however, via the HANDLOAD link; and one sees that HANDLOAD was used in 18 replications.

Scanning line 2, the "weakest link because of assets" line, it is seen that the HANDLOAD link was the weakest link in every chain in which it was used.

Since RUN #2 involves no limitations on number of substitutes, and no "as available" activities, linec #3, 5, and 6 can have no non-zero entries. In line #4, "number of times = 0 in a compound link; has an entry (10) for the CRANE. This indicates that, in the 10 replications in which the crane team did not function, the CRANE job is the one which could not be accomplished.

The final outputs from RUN #2 are the chain results and end-of-encounter summaries. Since only one chain was used in every replication, the chain results merely repeat the encounter results (Figure 29). The end-of-encounter results, Figure 33, gives the average numbers of light, medium, and dead failures, and the average equipment status at the end of the encounter.

The complete output from RUN #2 is contained in Appendix C.

VI. RUN #3 - REPAIR

A. Repair Inputs

In this run, repair activity is added. In AURA (as in an actual unit), repair requires the commitment of resources for various amounts of time. The input (see Appendix A) therefore calls for the specification of tasks which must be done to effect the repair, as well as the times that are required.

THE TOTAL TOTAL TOTAL PROPERTY OF THE PROPERTY

For this run, assume that light damage can be repaired in an average of 120 minutes with a standard deviation of ± 100 minutes, while the corresponding times for medium damage are 360 ± 100 minutes. Furthermore, assume that only the two operators and the loadmaster are capable of performing the repair task, that two people are required for 100

		LOADMS.		50	ပ ၁	0	Ω.	0	20	3 (0	> •	3 (>	50	.	0	0	•
		.FKLFT	11	50	00	0	0	၁	20	O	a))	>	64	> C	0	0	၁
		CKANE	10	50	<i>a</i> c	0	0	•	49	0	٥,	>> T	۰ د	>	84	> c	>	0	3
	LINE1)	FKLFT .	6	50	90	0	9	•	50	•	0	9	٥	0	64	> c	• 0	0	0
	C IN	/T OP.	ω .	50	90	•	၁	0	20	·)	0	o 1	0	>	50	o c) O	. 0	3
×	PLNK) ILE IN LINK T COUNTE	***** I GGER.R		20	ು ೦	3	ပ	0	64	0	0	0	9	٥	48	<u>ت</u> د	9 0	ن	Ç
		***** RANE .R	• •	, , ,	၈ င	• 0	•	•	64	?	O	0)	0	48	രാ) (2)	o 13	c
0	E IF N SETS UN Y NO. A LNK (S IN RE VAILABL	***** RUCK °C	· •		၁င	ں د	. 2	0	20	ပ	0	0	၁ ်	0	20	. :	: C:	c	Þ
ATION	INCL. # AUSE ASS HITED BY OMPOUND ISES (AS IN AS-AV.	***** ELE •1	*		c c	, ,	0	0	c	D	0	ဂ	o	0	0	.) (.	; \$	C
REPLIC,	S C 3EC IN C IN C IN C	***** DIO	• • м	50	~ C	ر د د	. ၁	O	53	c	0	c	0	'n	50	ე (ာ က	. 0	၁
TIME FOR	CTUAL IMES IMES IMES S-AVA	.*** IVER.			06	. n	. 0	G	c	0	0	G	0	c	0	၁ ¢) (2	ر د د	o
VS.	### 0F ## NO. NT I	***** ND L G • D R		•	a (ن .	0	0	٥	c	0	O	၁	၁	Н	> 1	၁ (دن .	Ö
INK RESULTS	CY LINE LINE LINE LINE CINE CINE CINE CINE CINE CINE CINE C	* • •	TIME .	00.0	•	• •	•	•	13.00	•	•	•	•	•	• 30°C9	•	• '	• •	•
<u> </u>	Ž.	*		•															

Figure 32. LINK Summary Tahle for RUN #2

			800000						
400000	400000	m 00000	* 0000 0	M00000	% 0 0 0 0 0	H 00000	<u> </u>	20000	23
			400×00						
			20000						
			00000						
			W03600						
			400000						
300000	0,0000	Š00030	ő. 00000	363000	80000	30000	000003	50000	90
060030	060000	00000	000000	060060	000000	33330	0,0000	020030	0
300000	00000	800000	002020	0.00.0	000300	30000	000000	200630	ů
000000	00000	00000	000000	000000	00000	00000	00000	900000	•
wwoaee	***	270000	1,0000	# 0000 **	2000 2000	5 5 5 5 6 7	20000	770000	23
	•••••								•
o o	ŏ	2.	360.00	ō	3	4 8 3 • 00	ö	õ	č
121	ĕ	240	ទ័	37.	ž	₩	<u>8</u>	600.00	99

Figure 32. LINK Summary Table for RUN #2 (con't)

						00000			
00000	200000	%0000 0	200000	200000	200000	ង១០០០	200000	******	10
						20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
						20000			
0000	50000	00000	00000	00000	00000	00000	800000	000000	ž 0
						00000			
						0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
00000	80000	00000	00000	00000	830000	0,20000	80000	000000	ž.c
0)630	26,2000	000000	00000	000330	630060	000000	060000	000000	36
20022	800000	800000	80000	800000	00000	00000	800000	800000	8 c
90996	000000	02000	000000	00000	000000	200000	000000	000000	00
¥0000	\$ 00 00 00 00 00 00 00 00 00 00 00 00 00	\$2 0000	0000E	**************************************	**************************************	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	20000 20000	9 6 C C C	36 44
• • • • •		•••••		•••••	• • • • • •	•••••	•••••	•••••	• •
	734.00	780.0%	840.00	410.00	9 60. 0%	1020-09	1090.00	1146.30	1203.03

Figure 32. LINK Summary Table for RUN #2 (con't)

- Charles and The services of The Control of the Co

			00000	
0000	#00000	200000	110000	1100000
o e s	C O C C C C C C C C C C C C C C C C C C	20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	concon	403000 0000
၈၀ပ၀	m00000	200000	400000	100000
၁၄ ၁ဝ	U C C C C C C C	000000	Q O Q O O	30303 5
သသသဝ	89936E	730000	2000 CO CO CO CO CO CO CO CO CO CO CO CO CO	400000
6930	დიოდათ N	×30000	<i>%</i> % & C C C C	% @ D O D O
9300	00cc36	\$ 0 0 0 0 0 M	0930cc	6 4 6 6 5 6 N
၁၀ ८ င	0~5550	000000	ဝေမှာင္မာဂ	303040
0000	N 023669	N 000000	000000	W 30000
0000	000000	000000	000000	peope
0035	88 84 84 84 84 84 84 84 84 84 84 84 84 8	ν ωωος σε ππ	>> >> © © © © © m m	>> >> >> >> >> >> >> >>
• • • •	• • • • •	• • • • • •		· · · · · ·
	1270.03	1320.00	1380. U 0	1443.00

Figure 32. LINK Summary Table for RUN #2 (con't)

END-3F-ENCOUNTER SUMMARY

MED DAM	00.0	. 38	.08	00.0	0.00	0.00
LIT DAM	0.00	• 56	• 40	C•00	0.00	00.00
CONTAMD	D C	၁ လ• ၁	00.0	0.00	0.00	0.00
UNHARMED CONTAMD LIT DAM	1.00 1.00 0.00 0.00	•25	.48	1.33	2,00	1.69
INITIAL	1.00	1.00	1.00	7•¢¢	7.0°Z	1.00
•		•	•	•	•	•
ASSET	1 TRUCK	FKLFT	CRAZE	RADIO	ALARM	TELE
	-	~	(LL)	*	~	₹.

Figure 33. End-of-Encounter Summary Data for Equipment

STATE OF THE PROPERTY OF THE P

percent effectiveness; and the repairs are done at location 10., 10. (near the radio operator).

Repairs can also require spare parts, which are expended by the repair process. Deployment of parts and definition of the task (LINK) that parts fill is done no differently than for any other material. However, use of the EXPENDABLE option (see Appendix A) causes parts to be used up proportionally to the repairs that are completed.

For this run, assume that the parts required for repairing light damage are called PARTS, that they are stocked and used in discrete sets, one per repair, and that they are deployed at the 10., 10. repair location.

B. <u>Output Controls</u>

It will be illustrative, on this run, to look in detail at some of the intermediate occurrences. For example, if the unit is limited by a repairable item, the decision may be made to allocate assets to the repair task. Thus, it might be of interest to have failures, repair activity, and asset allocation reported. AURA allows the user to specify which of several kinds of intermediate results are output. These options are listed in Appendix A under the control mmemonic OUT-PUT.

C. Runstream for RUN #3

The data lines which were added to the RUN #2 runstream to produce RUN #3 are indicated by arrows in Figure 34.

VII. OUTPUT FROM RUN #3

A. Baseline Output

Figure 35 contains the effectiveness versus time data from RUN #3. Unlike RUN #2, which had no repairs, the average ability of the unit to load trucks does not continue to decrease toward 0.40 (the handload-only asymptote); rather, a "plateau" is reached around 0.85 at which the failures and repairs seem to be "balanced." In fact, a slow decrease is still present, since dead (irreparable) failures continue to constitute 10 percent of all failures.

Inspection of the survivor table (Figure 36) shows the effects of repair: a much less precipitous decrease in the number of forklifts and cranes, and a slow decrease in the average number of PARTS.

The link results table (Figure 37) shows the effects of repair activity. Beginning at time 10., requests for the repair link began, and by time 60., had begun to be undertaken. The HANDLOAD link was often still a limitation, since loading continued while repair was being conducted. Several new phenomena appear. The LOADMSTR and FKLFT OP jobs became limitations in some replications, since the needed personnel are engaged in repair. Repairs are seen to be done both as part of the

```
#THIS IS THE INPUT FOR RUN #3
REPERTOIRE
FGS
TRUCK, TRK
FKLFT
CRANE, TRK
RADIO, TALKY
ALARM, TALKY
TELE, TALKY
R/T OP, PERSONNEL
LOADMSTR, PERSONNEL
DRIVER, PERSONNEL
MEN, PERSONNEL
FKLFT OP, PERSONNEL
CRANE OP, PERSONNEL
RIGGER, PERSONNEL
PARTS
# ANY RUN WHICH EMPLOYS WEAPONS ( REF. OTHER EXAMPLES IN THIS REPORT )
# MUST LIST WEAPON NAMES AFTER A "WEAPON" CARD IN THE REPERTOIRE
     # THIS END CARD IS ESSENTIAL
# NOTE THE USE OF THE # SIGN TO INPUT COMMENTS TRANSPARENT TO THE CODE
DEPLOYMENT
R/T DP, 0.,0., 1.,1,1,2,1,1,0
RADIO, 0.,0.,1.,1,1,1,1,0
ALAPM, 0.,0.,1.,1,1,1,1,0
TELE, 0.,0.,1.,1,1,1,1,1,0
MEN, 0.,1.,2.,1,1,1,1,1,1
TRUCK, 20.,50.,0.6,1,1,1,1,1,0
DRIVER, 20., 50., 0.6, 1, 1, 3, 1, 1, 0
FKLFT, 20.,50.,1.,1,1,1,1,1,C
FKLFY UP, 20.,50.,1.,1,1,3,1,1,0
HANDLOAD, 20, , 50, , -5, , 1, 1, 4, 1, 1, 0
                                     # THIS IS A DUMMY LINK.
# THE - SIGN ABOVE IS OPTIONAL. SINCE HANDLOAD ISN'T IN THE REPERTOIRE,
# THE CODE KNOWS HANDLOAD IS A DUMMY LINK.
LOADMS TR, 20,, 30,, 1,, 1, 1, 5, 1, 1, 0
MEN, 20., 80., 2., 1, 1, 1, 1, 1, 1, 1
ALARM, 20.,80.,1.,1,1,1,1,1,0
CRANE, 60., 60., 1., 1, 1, 1, 1, 1, 0
CRANS OP, 60., 60., 1., 1, 1, 3, 1, 1, 0
TRUCK, 60.,60.,0.4,1,1,1,1,1,0
DRIVEP, 60., 60., 0.4, 1, 1, 3, 1, 1, 0
RIGGER, 60, 60, 10, 1, 1, 4, 1, 1, 0
MEN, 80,,00,,20,1,1,1,1,1,1,1
PARTS, 10., 10., 100., 1, 1, 1, 1, 1, 1, 0
REPAIR, 10., 10., -2., 1, 1, 1, 1, 1, 0
END
LINKS
DRIVER, 1., 1.
SA, TRUCK
$PERSONNEL
$T,15.
$E,.85
```

THE STATES OF THE STATES AND SECURE OF THE SECUR OF THE SECURE OF THE SE

```
RADIO, 1.0
TELE,1.0
TRUCK, 1.0
CRANE 0P, 1.0, 1.0
$A, CRANE
$FKLFT OP, RIGGER, LOADMSTR
$T, 10, 5, 5,
$E, 0.8, 0.5, 1.0
RIGGER, 1.0
$PERSJANEL
$T, 5.
$E, 0.6
CHAINS
R/T OP, +1, !LOADING TECHNIQUE, TRUCK, LOADMSTR
HEADING
THIRD EXAMPLE RUN - REPAIRS
END
FAILURE RATE
CRANE, 1090., 8, 1
FKLFT, 720., .8, .1
END
INTERNAL RECONSTITUTION TIMES
#THESE ARE THE TIME INTERVALS FOR RECONST., RELATIVE TO OTHER EVENTS
10.,60.,120.,180.
END
RECONSTITUTIONS
#THIS INSERTS DUMMY EVENTS TO ALLOW FIXING THE ABOVE INTERVALS
0., 180., 360., 540., 720., 900., 1080., 1260.
#NOTE THAT THESE ARE ABSOLUTE SCENARIO "CLOCK" TIMES, AS OPPOSED TO THE
#RELATIVE TIMES SPECIFIED AFTER THE INTERNAL CARD
END
REPLICATIONS
50
END
EXPENDABLE
         # THE S INDICATES EXPENDITURE CONNECTED TO REPAIR
SPARTS
END
R/T DP, 1.0, 1.0
$LDADMSTR, PERSONNEL
$T, 20., 15.
$E, 1.0, 0.8
FKLFT, 1.0
CRANE, 1.0
FKLFT OP, 1.0, 1.0
$A, FKLFT
SCRANE UP, LUADHSTR, PERSONNEL
$E,0.9, 1.0, 0.2
$T, 10., 5., 5.
LOADHSTR, 1., 2.
$M,75
```

Figure 34. RUNSTREAM for RUN #3 (con't)

```
HANDLDAD, 5.0, 65
$M,1.0
$PERSONNEL
$E,1.
$T,5.
PARTS, 1.0
REPAIR, 2.0
$LDADMSTR, CRANE OP, FKLFT OP
$T,15.,15.,10.
$E,10,10,10
END
SUBCHAINS
*1, FKLFT, FKLFT OP
*2, CRANF, CPANE OP, RIGGER
*3, REPAIR, PARTS
END
DRLINK
+1, RADIO, TELE
+2, *1, HANDLOAD
END
COMPOUND LINK
ILDADING TECHNIQUE
+2, 0.75
*2, 0.25
END
REPAIR
FKLFT
                              # RPR LNK, DMG LVL, PRTY, RPR TIM, STD. DEV., LOC
$ +3,1,1.0,123.,50.,10.,10.
* *3,2,1.0,360.,100.,10.,10.
$ *3,1,1,0,120,,50,,10,,10,
$ *3,2,1.0,360.,100.,10.,10.
DUTPUT
CASUALTIES, ON
END
GD
```

THE SECTION OF THE PROPERTY OF

STOP

いない。これにはなる。これないというとも、まなななななができないというながらなるのであるなができない。これないないないのは、これないないないできないというというというというというというというというという

90-99 80-89 70 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90-99 80-89 70-79 60-69 50-59 40- 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90-99 80-89 70-79 60-69 50-59 40-49 30-39 20- 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90-99 80-89 70-79 60-69 50-59 40-49 30-39 20-29 10- 0	90-99 80-89 70-79 60-69 50-59 40-49 30-39 20-29 10-19 1-10 1	OPR CHAS
80-89 70-79 60-69 0 0 0 0 0 0 1 0 0 0 0 1 14 0 0 0 1 13 0 0 0 1 13 0 0 0 1 14 0 0 0 1 14 0 0 0 1 1 1 1 1 1 1 0 0 1 1 1 1 1 0 0 1 1 1 1	80-89 70-79 60-69 50-59 C	80-89 70-79 60-69 50-59 40-49 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	80-89 70-79 60-69 50-59 40-49 30-39 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 1 1 1 1	80-89 70-79 60-69 50-59 40-49 30-39 20-29 0 0 0 0 0 0 0 14 0 0 0 0 0 0 0 15 0 0 0 0 0 0 16 0 0 0 0 0 0 17 1 1 1 0 0 0 18 2 0 0 0 0 19 1 1 0 0 0 10 19 1 0 0 0 23 2 2 1 1 1 2 2 0 0 0 2 3 1 1 0 0 2 4 0 3 3 0 2 5 7 2 2 1 2 7 2 0 0 0 2 8 0 0 0 0 2 9 0 0 0 0 3 1 0 0 0 5 0 0 0 0 6 0 0 0 0 7 0 0 0 0 8 0 0 0 0 8 0 0 0 0 8 0 0 0 0	80-89 70-79 60-69 50-59 40-49 30-39 20-29 10-19 1- 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100 90-
20-69 11 14 11 11 11 11 11 11 11 11	70-79 60-69 50-59 0 0 0 0 1 1 0 0 0 1 1 0 0 0 1 1 1 1	20	70-79 60-69 50-59 40-49 30-39 0 0 0 0 0 0 0 1 8 0 0 0 0 0 0 1 14 0 0 0 0 0 0 1 15 0 0 0 0 0 1 17 1 1 1 1 0 0 1 18 0 0 0 0 0 1 19 0 0 0 0 2 2 2 2 1 1 1 2 2 2 2 2 1 2 2 3 1 2 2 2 3 1 2 2 2 5 4 6 0 0 1 5 5 6 6 0 0 5 7 7 8 8 9 5 8 9 9 9 9 5 8 9 9 9 5 8 9 9 9 5 9 9 9 9 5 9 9 9 9 5 9 9 9 9 5 9 9 5 9	70-79 60-69 50-59 40-49 30-39 20-29 0 0 0 0 0 0 1 8 0 0 0 0 0 1 14 0 0 1 1 0 0 1 15 0 0 0 0 0 1 17 1 0 0 0 0 1 18 0 0 0 0 0 1 19 1 0 0 0 1 10 0 0 0 1 10 0 0 0 1 10 0 0 0 1 10 0 0 0 2 2 2 2 1 1 1 2 2 3 2 2 2 2 3 3 1 1 0 0 5 2 2 2 2 5 3 3 1 1 0 0 5 3 40-49 30-39 20-29	70-79 60-69 50-59 40-49 30-39 20-29 10-19 0 0 0 0 0 0 0 0 11 1 1 0 0 0 0 0 0 13 0 1 1 0 0 0 0 18 0 0 0 0 0 0 0 19 12 4 0 0 0 0 0 0 19 10 0 0 0 0 0 20 1 0 0 0 0 21 2 0 0 0 0 22 2 2 1 1 1 0 0 23 2 2 2 2 1 2 2 24 1 3 3 0 0 0 25 4 1 3 3 0 0 26 4 1 3 3 0 0 27 5 2 2 2 2 2 0 28 7 7 8 8 9 9 9 28 7 8 8 9 9 9 29 8 9 9 9 9 20 9 9 9 9 21 2 2 2 2 2 0 0 0 22 2 2 2 3 3 1 0 0 23 2 3 2 2 3 3 1 0 0 24 7 8 9 9 9 9 25 7 7 8 9 9 9 26 8 9 9 9 9 27 8 9 9 9 9 28 9 9 9 9 29 9 9 9 9 9 20 9 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9 9 20 9 9	
	00000000000000000000000000000000000000	50-59 40-49 11 11 11 11 11 11 11 11 11 11 11 11 11	20-59 40-49 30-39 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	50-59 40-49 30-39 20-29 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20-59 40-49 30-39 20-29 10-19 11-19	70-79
00000000000000000000000000000000000000		0000011000001110110110110110	6 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	40-49 30-39 20-29 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	69-09
	000001100000111101110111011011011011011		6 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	67-07 68-08	11 61-01 62-02 6E-08 6E-	50-59

Figure 35. Effectiveness vs Time Data for RUH #3

• •	• •	0	0	0	0	~	N	٠	9	_	_	~	•	æ	œ	~	9	c	2	•	_	8	J	Ś	0	~	
ARTS	14	• •	Ö	Õ	00.00	0	0	œ	~	~	9.		Š	99.5	4	4.	m	99.2	~	99.1	0	0	Ò	.39	80	8.7	98.6
٠.	• •	: -	7	-	-																				-	_	•
RIGGER	13	• •	0	0	1.00	0	•	0	0	0	0	Ó	•		0	0	1.00	1.00	1.00			1.00					1.00
RANE .	12 .		1.00	•	1.00	1.00	•	1.00	•		1.00	•	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1. ៥០	1.00	1.00
KLFT .CF	11:	1.00	1.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	•	1.00	•	0	0	•
EN FK	10 .	:0	•	0	00.9	0	•	0	0	0	0	•	0	•	•	0	•	0	0	•	0	0	0	•	0	00 • 9	0
IVER.M	• •	: 0	•	• •	1.00	•	•	•	•	•	•	•	•	•	•	1.00	0	0	1.00	1.00	•	•	1.00	0	Ť	Ő	1.00
.O AOMS. DR	. •	• •	1.00	•	1.00	•	•	1.00	1.00	1.00	1.00	•	•	1.00	•	1.00	1.00	•	1.00	•	•	1.00	•	•	•	•	1.00
/T 0P.L		• •	•	0	1.00	•	•	1.00	1.00	•	•	1.00	•	•	•	•	1.00	1.00	•	•	•	1.00	•	•	0	0	1.00
ELE .R	• •	•	•	•	1.00	ပ္	•	•	•	•	•	1.00	•	•	•	1.00	•	1.00	•	•	•	•	1.00	•	•	•	1.00
ALARH .T		• •	•	٠	2.00	•	•	٠	•	•	•	٠		•	•	2.00	•	2.00	2.00	•	•	2.00	•	•		•	2.00
.RADIO .	4	1.00	0	•	9	•	0	•	•	•	•	•	•	•	•	0	•	•	•	•	0	•	•	•	•	•	0
RAME .	εn :	1.00	•	86.	96.	.93	• 93	06.	. 93	16.	.92	.93	.92	. 33	06.	• 88	06.	.86	.83	. 83	. 85	• 8 4	.80	.82	. 85	• 44	.83
KLFT .C	۲,	1.00	•	°	.88	18.	• 79	.80	.85	.85	.88	.87	.87	.77	.73	•77	•75	.72	• 68	.65	•64	• 65	.70	•65	• 63	99•	•71
TRUCK .FKLFT .CRANE	=	1.00	9	0	0	•	0	•	•	•	•	0	•	ô	0	9	•	1.00	ç	•	9	•	•	•	٥.	9	•
• •	TIME	0000	0.0	0.0	120.00	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.096	050.0	0000	1140.00	200.0	270.0	320.0	360.0	440.0

Figure 36. Functional Group Survivor Table for RUM #3

KEY: LINE1 = # OF ACTUAL USES (INCL. =) IF HOT IN COLMK)
LINE2 = # OF THMES YEAK DECAUSE ASSETS UNAVAILABLE
LINE3 = # OF THMES YEAK, LIMITED BY NO. ALLDED IN LINK
LINE4 = # OF ATTMES = # ON INCOMPANK (I THUS OF THE

*******	****	****	****	****	****	•	****	***	*****	*****	***								
	.4A4D .43	17.R!	FPAIR	ORIV	ER.RAI	נוס	.TEL	.Е	.TRUCK •	.CRAN	E .RIG	GE F.A	I/T CF	FKLFT	•CR ANE	.FKLFT	.LGADMS	PARTS	:
1146	: 1	•	2		•	4	•	5	. 6	: 7	•	. :	. 9	: 16	: 11	· 12	. 13	14	:
1,00	••••	••••	••••	o o	•••••	0	••••	0	•••••	5G	5	•	50	5 C	50	50	50	••••	•
·	.)		0	0		0		0	30 0 0	3 0		0	9	C	50 C C	0	3	0	
			J	٥		G		ა	a	٥		0	ò	C	C	0	9	0000	
	. 0		o o	3		0		0	9	0		0	0	Č	. 6	0	3 0	٥	
10.00	. ,		3	o		50		0	50	50	•	0	50	50	50	50	50	0	
10130	. 0		ა	٥		0		J	0	0			00	6	Ĝ	9	0	0	
	. 3	1	3	0		ů		0	0	3		0 0	0	Ç	C	0	0	0	
	•)	,	3	0		0		3	0	0		0	G	0	c	٥	9	0	
	,)	ij		J		9	0	9		0	o	c	С	0	o	o	
6.). 0.1	. 3		1	9		50 3		0	50 0	49	•	9	50 C	30	4 9 C	50	50 1<<	100	
	. 0	}	3	٥		0		0	0	0		0	0	0	C	0	ō	0	
	. 0	1	J	0		9		0	0	0		0	C	0	C	C	3	٥	
	. 0)	J	3		Ç)	0	0		0	0	0	C	٥	0	3	
120.00	. 6) < <	2 0 3	0		50		0	50	48		0	50	44	4.0	44	50 2<<	2	
)	Š	٥		٥		j	0 0	å		Ŏ	Ô	CCC	C	ů o	J	2006	
	. 3)	6	0		ò		2	٥	0		٥	2	Č	C	0	0		
			ა	ა		٥		0	0	0		0	. •		C	٥	9	0	
199.30	. 13) < <	•	0		50		0	30	46	. 4	6	50	40	46	40	5	•	
	• 1)	v	3		0		3	0	υ		٥	٥	0	Ċ	0	ě	0	
)	ដ 9	0		0		0	0	0		0	0	o o	G	0	3	9	
			2	0		0		0	ð	à		0	0	0	c	0	0	٥	
240,00	. 13	**	5	3		50 0		Ç	50	47		7	50	37 C	47	37	50 2<<	5	
	. 0)	J	3		Š		٥	0	0		0	0	0	Ċ	0	9	٥	
)	3 12	3		Ş		9	9	0		0	0	C	14	4 0	0	0 12	
	. 0)	3<<	J		Ü		9	٥	0		٥	0	¢	Č	٥	Ó	٥	
300. 77	. 11		10	ა		50		9	90	46		6	50	3 9	46	39	50	10	
		<<	0	s s		ů		0	0	0		0	0	G G C	, 3<	ŏ	644	1 C 0 0	
			9	ů o		ĵ		0	0	0		3	0	ć	\$<	< 0	0	9	
		•	5<<	ă		Š		ŏ	ŏ	Ò)	ŏ	ŏ	Ç	Ç	ŏ	ó	à	
373.00	. 4	3	7	Ų		50		•	50	48	. 4	8	50	42	48	42	50	7	
) < <))	0		0		0	0	0		0	9	24	:< 4<	• 0	2<<	0	
			3	٥		0		2	٥	0		o o	0	٥	1 <	< 0	3	0	
	: ?	,	7 5<<	٥ ن		3		ò	0	0)	0	0	Ċ	ŏ	0	0	7	
420.00	. {) }<<	6	Ģ		50		S	50	46	. 4	6	50	42	46	4 4 Z	50	6	
	:	}<<	3	3		0		3	0 0 0 0	0))	3	0	24	* 2*	* 0	4<<	9	
	•) , ,	5 7 544	ა ა ი		0000		0000	0	0)	0	0 0	0 C C	0 1 4	. 0 0 0	3	3 0 7 3	
	: 6	5				ŏ		ŏ	ŏ	ă		ŏ	ŏ		č	ŏ			
460.00	. ;	,	7 1<< 3 5)		50		า	30	45	. 4	5	50	43	45	43	50	7	
	:	, , , , , ,	3	0000		500000		2 2 2 2	30 0 0 0 0	45 0 0 0) }	5 0 0 0 0	50 0 0 0	l c	·	43 4 0 4 0 5	5<<	7 0 0 6	
	•		į	j		Š		Ž	Ŏ	ā		Ò	Ó	ġ.	1<	٠ ٥	Ŏ.	Ŏ	
	: 3	Ś	444	ŭ		č		9	ò			ŏ	ŏ	43 C 0 0	49 C 1< C	ŏ	50 5<< 0 0	č	
550.00		5	;; ; ;	o		53		1	50	45	<<	5	50	45 C C C	45 C 19 C C	45	50 4 < < 3 0 0	10	
	:	5 5 < <)	4<<	. o		Ç		3)	1	.<<	S S	9	50	· 1 ·	* 0	4 < <	9	
)	3	: 0 3 9	: I	33000		2021	0 0 0 0	7	,	500000	50 0 7 0	É	10	45 4 0 3 4 0	0	10 0 0 0 2	
		,	į‹‹	j		·		ö	õ	d)	Š	Š	č	č	ŏ	ŏ	š	

#3

LINK Summary Table for RUN

37.

100000	9000	P00000	-000000	****	200000	200020	400000	#000 Me
				2,40000				
400000		900000	We0000	#00000	*00000	m 0 0 0 0 0	m00000	#0000
*********		\$00×00	*****	*****	#00,00	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	********	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
*,0000	m	~	~~~~	* , 6000	~ * • • • •	m ************************************	, , , , , , ,	g Xeess
				000000				
400000	ůo o o o o	* 00000	‡ 00000		# 00000	40000	.	400000
‡ ,0000	42,000	\$04000	1 a y o o o	200000	m o v o o o	4 0 w 0 0 0	‡0m000	,,o,,ooc
				00000	800000	600000	000000	00000
300300	00000	00000	00000	00000	00000	00000	00000	999999
202003	° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	00000	00000	00000	800000	800000	000000	00000
00000	000000	00000	00000	00000	000000	000000	00000	909999
1200en	000000	~000 0 %	**************************************	**************************************	10000 ×	, , , , , ,	, , o o o o o o o o o o o o o o o o o o	11 00 0 11 × × ×
, , , , , , , , , , , , , , , , , , ,	7770000	**************************************	## 0000	***	***	71,0000	1174 00 00 00	1194
• • • • • •	• • • • • •	• • • • •	• • • • • •	• • • • • •	• • • • •	• • • • •	-	-
603.	ō • 0 9 9	730.0	780.0	940.00	910.0	0.096	1020.0	1090.

Figure 37. LINK Summary Table for RUN #3 (cont'd)

1140.00	• • • • •	119<00000	11 0 0 0 12 6<<	00000	00000	00000	•							111000
1200,00		16 << 0 0 0 0	15 0 0 0 10 7<<	000000	00000									# 00000
1270.00		118 118 0000 0000	14 14 0 10 10 8<	000000	00000	00000	00000	#0%000	400000	00000	× × × 0 0 0 0	 200000	00000	400000
1320,00	• • • • •	119 0 0 0 0	H 0 0 0 0 1 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	000000	000000									100000
1380.00	0	>> 0 0 0 C	11 0 0 0 12 12 8<<	000000	000000			•					,	10000
1440.00	• • • • •	25000c >>	144 0 0 7 8<<	000000	00000									400000

Figure 37. LINK Summary Table for RUN #3 (cont'd)

mission (line #1 in the link-use table) and using available personnel and equipment (line #5).

Finally, the end-of-encounter summaries show the average number of failures, repairs ordered, repairs completed, and status of repair at the final time point (1440.).

The complete output from RUN #3 is contained in Appendix D.

B. PREFAIL Excursion

A number of excursions (corollary runs to study the sensitivity of results to specific parameters) are often suggested by the results of an AURA run. Two excursions were conducted for RUN #3: First, to illustrate the PREFAIL option, a "PREFAIL-ON" run was done. Secondly, the sensitivity of results to a limitation in the number of repair parts was conducted.

The runs conducted thus far have assumed that all deployed equipment (and personnel) were all available at the beginning of each replication. In the case of time-dependent failure and repair, it may be more realistic for some studies to assume that repairable failures and then subsequent repairs have occurred before the time period of the AURA run. It can be shown that, given sufficient time, the expected fraction, f, of equipment which are awaiting repairs given by:

$$f = F/(F + R) \tag{1}$$

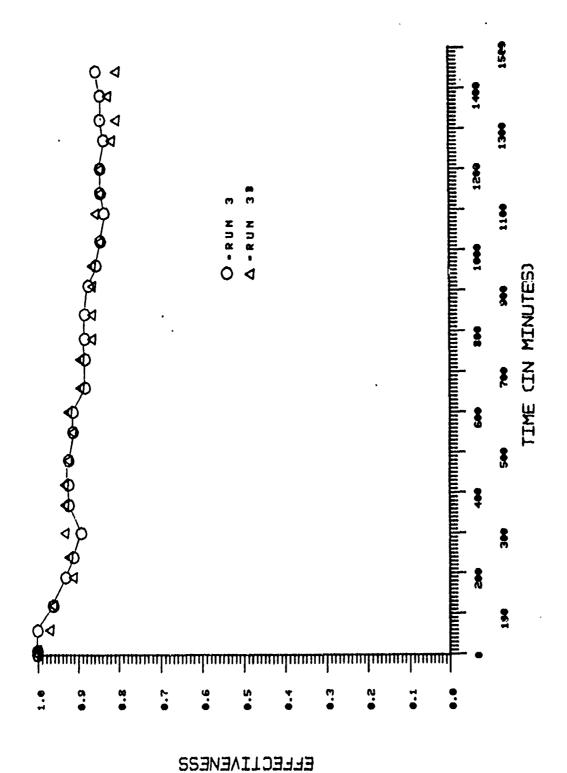
where F is the failure rate, and R the repair rate for each type of equipment and particular mode of failure or repair.

When the PREFAIL option is not turned OFF, AURA uses the values of f as a probability function for each type of "fail and repairable" equipment. A Monte Carlo technique uses these values to preselect equipment failures before commencing each replication. Items designated as failures are then available for repair at the onset of the encounter.

C. Limited Repair Parts

A final excursion, RUN #3B, was made on the Failure-Repair example (RUN #3). In this excursion, the initial number of PARTS was decreased from 100. to 2.

The s from this excursion are shown in Figure 37. At first glance, the appears to be essentially no difference between RUNs #3 and #3B. This is certainly to be expected, since the mean times between failures (750 and 1080 minutes for the FKLFT and CRANE respectively) are fairly long in the time scale of the runs. In fact, even with unlimited repair parts, the END-OF-ENCOUNTER-SUMMARY for RUN #3 (contained in Appendix D) shows an average total of only 1.9 repairs ordered, and less than 1.5 completed. However, as time progressed, one would expect the lack of repair parts to become more critical. In fact, as seen in Figure 38, the results of the runs are beginning to diverge as the



Graphic Comparison of RUN #3 and RUN #3B Average Unit Effectiveness

encounter time exceeds the characteristic failure times of the equipment.

VIII. ATTACKING WITH FRAGMENTING/HIGH EXPLOSIVE MUNITIONS

A. General

CHICKELLE PROPERTIES OF THE PROPERTY OF THE PR

In this section, the scenario being built around the example unit is extended to include an attack on the unit with area coverage munitions. The munitions employed in this chapter are "conventional" (fragmenting, high explosive), but the modeling of their delivery is similar to the delivery of nuclear or chemical warheads. The input requirements for modeling the immediate response of personnel to incoming area munitions, viz, to change posture, is also similar for all area munitions. We will take advantage of these similarities in discussing weapon delivery and posture change models in this chapter.

On the other hand, the result of warhead detonation, and the modeling of posture change effects are quite different, and must therefore be represented by markedly different models. Conventional lethality models are discussed in Section VIII.E. of this chapter; nuclear and chemical effects are left for subsequent chapters.

B. Target Location and Warhead Delivery Errors

In the delivery of warheads to an area target (for example, firing rockets at the example unit), there are a number of rather independent sources of error. First, the actual location of the target is imperfectly known. For example, if the perceived location is based upon triangulation of an intercepted radio signal, the probable errors inherent in the process show up as probable errors in aimpoint.

Secondly, inaccuracies in the delivery systems result in two types of delivery errors. One type, called correlated errors, applies to those rounds in an associated set, such as in a volley. This type of error could be caused by an error in meteorological data, which affects the delivery of all rounds. The second type, independent, applies to any effects which result in round-to-round deviations.

AURA accounts for target location errors (TLE) and delivery errors independently, using a Monte Carlo approach. At the beginning of each iteration, random numbers are drawn and multiplied by the user-input TLE standard deviations to determine specific target location errors (range and deflection). This set of TLE remains in effect for the duration of the iteration, unless caused to be replaced by a TLE-change event. (A TLE-change event might be used to model the effect of a mid-encounter move or change in signature.)

Similarly, random number draws, multiplied by standard deviations, are used to develop specific values for delivery errors. For each set of rounds designated as a volley, specific range and deflection errors are calculated. In addition, each round has an independent set of range and deflection errors randomly derived. The standard deviations used to

derive correlated and independent errors are user-input for each weapon type. Like the standard deviations for TLE, the standard deviations for correlated and independent errors can be changed by a user-input delivery error change event to model, for example, a mid-encounter change in accuracy due to a change in range.

The total error for any specific round is then given by the sum of the target location, correlated, and independent delivery errors. The errors are applied to the user-designated aimpoint (for example, the radio location in the case of radio intercept targeting) to determine the actual burst point for each munition. The height-of-burst, which depends only upon the designated height and round-to-round variation (independent error), is also randomly calculated.

Although the above discussion has referred only to standard deviations, there are distributional and input format options available. The most common distribution is the bivariate Gaussian. In this option, independent random numbers are drawn from a normal distribution and multiplied by user-input standard deviations to determine specific range and deflection errors.

Normally distributed random numbers are also used with the CEP (circular error probable) format options. The user-input CEP values are internally converted to equivalent standard deviations before processing as above.

In some studies, it may be desirable to model some of the errors as being uniformly distributed. For example, in studying the resiliency of a unit that has no salient signature point, it might be appropriate to specify an area in which an aimpoint is randomly selected. As another example, consider a weapon system which is designed to uniformly scatter submunitions over an area. This can be modeled as a volley of submunitions having a normally distributed correlated error that reflects the delivery error of the carrier and uniformly distributed independent errors to model the uniform random dispersal of submunitions. AURA allows the user to designate uniformly distributed deviations by prefixing the input value with a minus (-) sign. Any value so designated is taken as the amplitude, A, of the error distribution: any specific error will lay between +/- A.

DELIVERY ERROR
WEAPON NAME, (t), REI, REC, DEI, DEC, HGB

where (t) is the time for a change-event (optional)
REI is the range error, independent
REC is the range error, correlated
DEI is the deflection error, independent
DEC is the deflection error, correlated
HOB is the height of burst error

C. Coordinate Systems

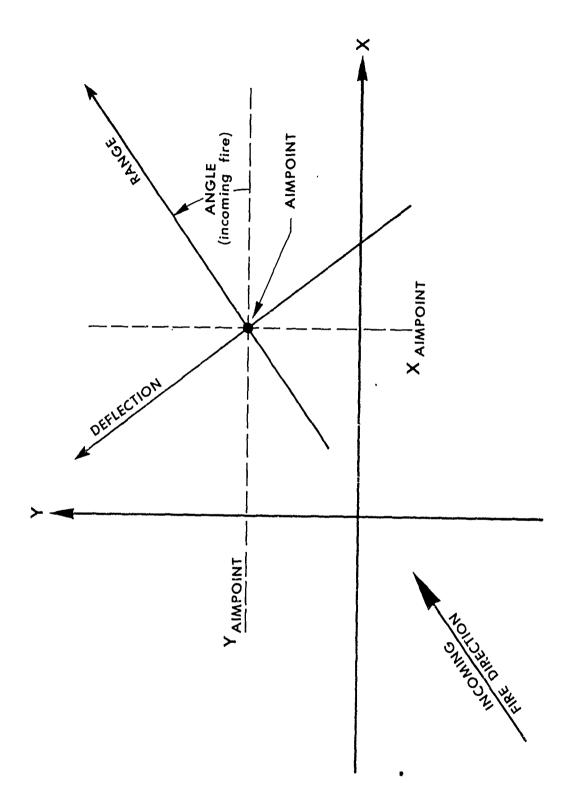
apparation of the second of th

The above discussion implied the existence of a new coordinate system, namely range - deflection. In fact, there are three coordinate systems used in AURA. The primary system is the cartesian, X-Y, coordinate system in which the target deployment is specified. Recall that both the origin and scale unit of length are established by the user; however, it is strongly recommended that a convenient point in the target area be used as the origin, a convenient direction for the X-axis, and one meter be used as the unit of length.

Weapon effects and delivery errors are dependent not on the user's choice for X-axis direction but on the direction of the incoming fire. This direction defines an axis called RANGE, which is positive in the incoming direction of the threat: the direction counter-clockwise (right-handed) perpendicular to RANGE is the positive DEFLECTION direction. Orientation of the RANGE-DEFLECTION coordinate system is established by the user by specifying the angle between the unit X-axis and the RANGE axis. The unit of length for the RANGE-DEFLECTION system must be the same as that for X-Y (meters). Finally, the origin of the RANGE-DEFLECTION system is moved, by AURA, to the appropriate X-Y point for each application. For example, an aimpoint error - specified in range and deflection - is measured from the actual target (X-Y) aimpoint. The relationship between the X-Y and RANGE-DEFLECTION systems is shown in Figure 39.

The third coordinate system, DOWNWIND-CROSSWIND, is very similar to RANGE- DEFLECTION, the only difference being the substitution of the WIND DIRECTION angle for the INCOMING FIRE DIRECTION angle. DOWNWIND-CROSSWIND is used for the chemical weapon effects described in Volume II.

Usages of the various coordinate systems is summarized in Table 2.



Relationship between the X-Y and RANGE-DEFLECTION Coordinate Systems Figure 39.

TABLE 2. COORDINATE SYSTEMS FOR GEOGRAPHICALLY RELATED PARAMETERS

PARAMETER	COORDINATE SYSTEM	COMMENT
Deployment of items	х-ч	Defines X-Y system
Aimpoint	X-Y	e.g. Signature point
Target location error	RANGE-DEFLECTION	Measured from Aimpoint
Delivery errors	RANGE-DEFLECTION	Measured from Aimpoint
Burst point of munition	х-ч	Internally computed by AURA
Conventional weapon effects (Lethal radii)	RANGE-DEFLECTION	Measured from burst point
Chemical contamination and vapor clouds	DOWNWIND-CROSSWIND	Measured from burst point
Volley parameters (length, angle, movement)	RANGE-DEFLECTION	See Section VIII C

D. Specification of Incoming Fire - ROUND and VOLLEY

Two options exist for specifying the arrival of incoming rounds, the ROUND and VOLLEY inputs. Of these, the ROUND option, specifying the arrival of one warhead, is the simpler. The format for the ROUND input is:

WEAPON NAME, TIME OF ARRIVAL, AIMPOINT (X,Y AND Z)

As noted in Table 2, the aimpoint is in the X-Y (target) coordinate system.

It quite often happens, however, that a correlated group of rounds arrives — such as rounds in a volley or bomblets in a common carrier. Such cases may be modeled as designated aimpoints in a pattern, with the pattern centered about a volley aimpoint. In AURA, the pattern shape is taken to be a line, with length and angle (with respect to the incoming fire (RANGE) direction) user specified. The format for VOLLEY input is:

WEAPON NAME, TIME OF ARRIVAL, \boldsymbol{x}_{A} , \boldsymbol{y}_{A} , \boldsymbol{z}_{A} , NR, ANG, LENGTH

where

 X_A , Y_A , Z_A is the designated aimpoint

NR is the number of rounds in the volley

ANG is the angle between the volley line and the incoming (RANGE) direction, and

LENGTH is the length of the volley line.

The angle, ANG, allows the modeling of markedly different delivery means. For example, an artillery barrage customarily attempts to lay a line of impact points perpendicular to the RANGE (incoming fire) direction: this line is then moved (walked) in the range direction. On the other hand, an aircraft laying a stick of bombs lays them parallel to the incoming direction.

The actual burst points of the munitions differs from their intended burst points because of the errors described above. First, the actual location of the unit relative to the perceived location is a random variable (in X and Y), dictated by the target location error. Then, the center point of the volley pattern - the pattern aimpoint - differs by a random amount (in RANGE and DEFLECTION), as driven by the correlated delivery errors. Finally, each round burst point differs from its designated point in the pattern by its randomly chosen independent error (in RANGE and DEFLECTION).

The ability to specify uniform and/or normally distributed patterns about a designated line of points gives a fair amount of flexibility to the threat input. For example, in this chapter, a conventional threat is delivered against the example unit. The threat chosen consists of two improved conventional munition (ICM) warheads, each carrying 42 bomblets. Each ICM was modeled as a volley of 42 rounds. Since all rounds emanate from the same point, the volley length was set to 0.; the volley angle (immaterial for a zero-length volley) was set at 90. degrees. One ICM, arriving at time 1., was aimed at the center of the unit (40.,40.); the second, at time 300., was aimed at the RADIO location (0.,0.). The correlated delivery error, which accounts for the delivery error of the carrier warhead, was set at 160 meters in range and 80 meters in deflection, both being standard deviations from a normal distribution. independent error was used to randomly distribute the 42 bomblets in a pattern about the actual burst point; the pattern is uniformly distributed +/-50 meters in range and +/-25 meters in deflection.

The runstream to input this data is shown in Figure 40.

E. Conventional Lethality

The lethality of a high explosive, fragmenting warhead is a complicated function of a number of diverse parameters, such as target-warhead spatial relationship; warhead orientation; terminal velocity and functioning characteristics (blast and fragment patterns); target posture and defeat criterion; and atmospheric effects. The Joint Technical Coordinating Group for Munitions Effects (JTCG/ME) has standardized methodologies for evaluating lethality; the outputs of those methodologies involve evaluations of the probability that a warhead above a specified point on the ground, at a specified height-of-burst (HOB),

```
100 VOLLEY
110 WRHDICM, 1.0, 40., 40., 0., 42, 90., 0.
120 WRHDICM, 300., 0., 0., 0., 42, 90., 0.
130 END
140 DELIVERY ERRORS
150 WRHDICM, -50., 160., -25., 80., 0.
160 END
170 CONVENTIONAL LETHALITY INPUT
99 END
```

Figure 40. RUNSTREAM for Incoming Fire Data

with a given set of characteristics, will cause a specified level of damage (kill criterion) to a fixed target in a specified posture. By repeating such evaluations for many different points on the ground, a map of kill probabilities (P_k) can be drawn. (The areal integral of those kill probabilities over all points on the ground yields the commonly used lethal area (A_I) or mean area of effectiveness (MAE) value.)

There are several ways of representing a kill probability map for use in AURA. An overly detailed (currently disabled) technique is to input a comprehensive grid of $\mathbf{P_k}$ values for every weapon-target-posture-kill criteria-HOB combination. AURA places the appropriate grid about every target and evaluates the probability of every incoming weapon against the target. As expected, such a technique is grossly demanding of computer storage space and has less detailed techniques.

The other techniques for representing the P_k maps basically amount to fitting those maps with simple functions in range and deflection, such that the approximate P_k of a warhead detonation is quickly found from the range and deflection to the target, the HOB, and the target posture and kill criterion. In AURA, two kinds of simple functions can be used: Cacleton (exponential) functions and sets of one or more concentric step functions. (Examples of these are shown in Figure 41). Various functional forms can be mixed in the same conventional lethality data file for a given AURA run. For more on fitting of functions to P_k maps, see Reference 6.

The mnemonic command CONVENTIONAL causes AURA to read conventional lethality data from input channel 2. The format of such data is:

,这个人的人,这个人的人的人,我们们们的人们是一个人的人的人,我们们也不是一个人的人的人,我们们们的人们的人们的人的人的人,我们们们的人们的人们的人们的人们的人

⁶ JTCG/ME, "Simplified Weapons Evaluation (QUICKIE) Computer Program," 61 JTCG/ME-77-1, 25 February 1977.

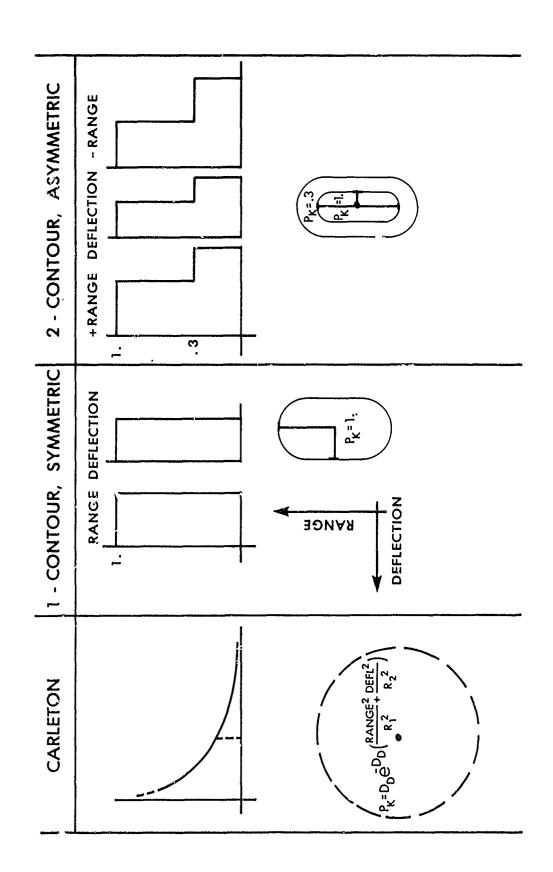


Figure 41. Examples of Carleton and Concentric Step Functions

```
WEAPON 1
TARGET 1, DATA TYPE CODE 1
NHOB, <----Heights (meters)
NPOS, <----Descriptions
NCRIT, <----Descriptions
```

NHOB*NPOS*NCRIT

data lines

NPOS

NCRIT

TARGET 2, DATA TYPE CODE 2

NHOB

NHOB, <----Heights

NPOS

END
WEAPON 2
TARGET 1, DATA TYPE CODE 1

END END

Here, NHOB is the number of heights of burst, NPOS is the number of postures, and NCRIT is the number of kill criteria for which data is being input. The code numbers, which indicate the form of the data for each weapon-target combination, are listed in Table 3.

A final comment must be made about the apparently prodigious amount of data involved in conventional lethality. The methodologies used and parameters available do allow the user to portray highly detailed effects and differentiate between fairly subtle parameters; such capability might be necessary for evaluating highly technical developments (e.g. the effectiveness of a new fuse). However, such detail is not necessary for AURA to run. In the more usual case, a single HOB, posture, kill criteria, and a single P_k and radius for each weapon-target type is sufficient. This is, in fact, the lowest level of detail at which data readily are available (e.g., in JTCG/ME manuals). Any attempt to use a more general probability of kill, or to use one in a more general fashion, requires an amount of modeling and pre-processing be done off-line in order to derive appropriate values for the generalized parameters. The philosophy in building AURA was to avoid off-line modeling by incorporating within AURA itself sufficient coding to take the standard data that do exist in the form in which they exist.

Figure 42 contains conventional lethality data for the example unit. The warhead, called WRHDICM, was listed as a weapon in REPERTOIRE; target items, FKLFT, TRK, TALKY, PERSONNEL, and PARTS, were

TABLE 3. DATA TYPES'

CODE NO.	DESCRIPTION NO.	OF PARAMETERS	COMMENTS
1	Complete grid		Currently disabled
2	Carleton-von Neuman	3	"Peak" Probability plus exponential constants in range and detlection
3	Step function	3	Probability (P), radius in RANGE (R_{χ}) , radius in DEFLECTION (R_{χ})
4	Special system		Currently disabled
5	2-step function	6	P ₁ , R _{X1} , R _{Y1} , P ₂ ,
			R_{X2} , R_{Y2}
6	3-step function	9 .	P ₁ , R _{X1} , R _{Y1} , P ₂ ,
			R _{X2} , R _{Y2} , P ₃ , R _{X3} , R _{Y3}
7	Asymmetric Carleton	4	Like 2, but different exponential constants for + and - range
8	Asymmetric step function	4	P_1 , R_X^- , R_Y , R_X^+
9	Asymmetric 2-step function	8	P_{1} , R_{X1}^{-} , R_{Y1} , R_{X1}^{+} , R_{X1}^{+} , P_{2} , R_{X2}^{-} , R_{Y2}^{-} , R_{X2}^{+}
10	Asymmetric 3-step function	12	P ₁ , R _{X1} , R _{Y1} , R _{X1} , P ₂ , R _{X2} , R _{Y2} , R _{X2} , P ₃ , R _{X3} , R _{Y3} , R _{X3}

CONVENTIONAL LETHALITY DATA

```
URHDICM
FKLFT,5
1.0.
1. OPEN
3. HEAVY, MEDIUM, LITE
1.,3.37,3.37,.3,15.06,15.06
1.,3.52,3.52,.3,47.18,47.18
1.,3.53,3.53,.3,47.88,47.88
TRK,5
1,0.
1, OPEN
3, HEAVY, MEDIUM, LITE
1.,3.42,3.42,.3,24.89,24.89
1.,3.52,3.52,.3,51.42,51.42
1.,3.53,3.53,.3,52.11,52.11
TALKY,5
1,0.
1, OPEN
1, INCAPACITATE
1.,2.96,2.96,.3,19.84,19.84
PERSONNEL, 3
1,0.
2. OPEN, PRONE
1, INCAPACITATE
1.,13.06,13.06
1.0, 5.0,5.0
PARTS, 3
1.0.
1, ONLY
1, INCAPACITATE
1.0,7.68,7.68
END
```

Figure 42. Conventional Lethality Data for the Example Case

listed as assets. Notice that TALKY and PERSONNEL were not unique names but served to relate one set of lethality data to several assets. Two data types, 3 and 5, were used to demonstrate mixing of data formats. A single HOB, posture, and kill criteria — and hence a single data line — was used for TALKY and PARTS. Personnel data was input for two postures, OPEN and PRONE, thus requiring two data lines. Finally, three kill criteria, corresponding to TOTAL LOSS, AT LEAST MEDIUM DAMAGE, and AT LEAST LIGHT DAMAGE, were input for the repairable items. Notice that such data is sequentially inclusive; AT LEAST LIGHT DAMAGE includes MEDIUM and TOTAL DAMAGE. This format is essential to interface with standard vulnerability evaluation techniques.

F. RUN #4 - Results

The addition of conventional attacks on the example unit caused several changes in the output of the AURA run. The first, of course, was to add new lines to the event table (Figure 43) and to add a weapon table to the "repeat-of-input" printout. There follows sixty-four pages of intermediate results detailing every damage and casualty in each of the fifty replications, along with all information on the round which caused it. The printing of this information was caused by turning CASUALTIES, ON under the OUTPUT mnemonic. This detailed printout also includes casualties resulting from non-hostile causes, such as the reliability failures which were seen in RUN #3.

Comparing the final, encounter results of RUN #3 (Figure 35) with RUN #4, one first notices a generally lower set of effectiveness values, with marked decreases at times 11. and 310., resulting from the lethality events at times 1. and 300. The frequency distribution of results shows a greater spread, including some replications in which the effectiveness decreased to 0. (Recall that the minimum effectiveness in a non-hostile environment was 0.4.) The reason for the appearance and disappearance of 0. effectiveness becomes apparent by studying the succeeding outputs.

The next table, FUNCTIONAL GROUP SURVIVORS, (Figure 44) from RUN #4 markedly differs from that in RUN #3 (Figure 36). Whereas only those assets which failed showed any decrease in RUN #3, all assets had losses in RUN #4. In particular, the average number of R/T OPs decreased from 1. to .96 at time 11., and to .90 at time 310.. These numbers, averaged over 50 replications, indicate that the sampling of weapon delivery errors, in some replications, resulted in warhead burst points which caused R/T OP casualties. In fact, since the lethality file (from input channel 2) specifies only $P_{\bf k}=1.$ or $P_{\bf k}=0.$ for personnel, there must have been exactly 2 replications which produced an R/T OP casualty at time 1. and 3 additional replications resulting in R/T OP casualties at time 300. Since the CASUALTY output option was turned on for this run, the occurrence of the R/T OP casualties was printed out in the intermediate results, as discussed above. Perusal of that output revealed the specific 5 replications in which R/T OP casualties occurred.

The next table, LINK RESULTS (Figure 45), also differs from that in RUN #3 (Figure 37). At time 11., after the first lethality event, a number of links have recorded weak replications. The repair capability

	:	•	o c	> -	٦,	4 0	u 6	n (۰ (Ç,	٥ د	ı - -	• •	-	٠,	ט ר	n c	۰ د	4 0	J M	۰ د	۰ د	٠ ٠	א ני	۰ د	- د	• ^	1 "	٠ (> -	٦ ,	4 6	n c	,	٠,	י נ	1
JEVNT		ć	.	۔ د	٠ () C	> c	> <	o c	o c	۰ د	1 0	o c	,	, c	,	> C	3 C	,	,	> <) C	,	o c) C) C) C) C) c	o c	,	.	> c	, c	, c	, c	0
2	•	c	000	•	٠, ر	. C	o c	0		9 6	,-	• •	000			oc	0	,	ی د	oc	000		o c	o c	0	:	· c	c	000	,	0	, ,	0		o c	· c	0
VOLLEY	•			00.00	•						00.0	•																									
VOLLEY	•			00.00	•						90.00	•																									
2	•			00.0							00.0																										
062/TLE Y				40.00	•						00.0				•																						
×				40.00	•						00.00																										
IIO.RNDS/ +/- RAM				42	!						45																										
WPN TYPE/ RECUPTIHE				-	10.00	90.09	120.00		ö	239.00	-	10.00			120.00	180.00		250.00	300.00	350.00		430.00	430.00	540.00		610.00	00.099	720.00		790.00	840.00	00.006		970.00	1020.00	1030.00	1140.00
OPERANT C'IA ENS		H	-1	7		7	-	-1	1	-	-	-1	-		-		-	_	-	-		~ 1	1			-	-	_		1		-	-1			-	1
EVENT TYPE		INITIAL	USER RCNST	CONV. LETH	RCNSTITUTE	RCNSFITUTE	RCNSTITUTE	USER RCNST	RCNSTITUTE	RCNSTITUTE	CONV. LETH	RCNSTITUTE	USER RCNST	RCNSTITUTE	RCNSTITUTE	RCNSTITUTE	USER RCNST	RGWSTITUTE	RCNSTITUTE	RCMSTITUTE	USER RCNST	RCMSTIFUTE	RCNSTITUTE	RCNSTITUTE	USER RCNST	RCNSTITUTE	RCNSTITUTE	RCNSTITUTE	USER RCNST	ACASTITUTE	RCMS TITUTE	RCNSTITUTE	USER RCNST	RCNSTITUTE	RCNSTITUTE	RCMSTITUTE	RCNSTITUTE
TIME																										_		_	_	_	_	_	_		1320.00	_	_
EVENT				m																								_	_			_			34 1	_	_

Figure 43 Event Table for RUN #4

0 ASSET SURVIVORS - INCLUDING CONTAMINATED - VS. TIME FOR REPLICATION

• •	7	•	8.0	8.0	66.26	7.9	7.8	5.7	5.7	5.6	5.6	5.5	5.4	5.3	5.3	5.2	5.5	5.1	5.0	5.0	6.4	4.8	4.8		4.7	4.6	7
• (• •	1.00 1	2	~	2	~	~	9	9	9	9	9	•	9	9	9	9	9	9	9	9	9	9				
• •	12 •				.92																						
	11	1.00			06.																						
•		6.00	4.	4.		4.	4.	٠,		7	4	7	4	7	٦,	7	4	7		٦.		٦,	4	۲.	7	7	-
•	6	1.00	6		.91																						
•	. •	1.00	06.	06.	06.	06.	06.	• 84	.84	.84	.84	.84	.84	.84	.84	.84	.84	.84	•84	•84	•84	.84	• 84	• 84	.84	• 84	70
•	7 .	1.00	*6 •	• 94	• 94	*6 •	* 94	• 86	• 86	• 86	• 86	• 86	. 86	• 86	• 86	• 86	. 86	• 86	• 86	• 86	• 86	• 86	• 86	• 86	98.	• 86	70
•	• •				.91																						
•	5	• •	æ.	.8	1.82	8	8	۲.	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1
•	4	Ĭ.00			.91																						
•	m	1.00			• 66																						•
•	8	1.00			9			Ś																	9	9	4
•	 1	1.00	.89	•89	68°	.89	.89	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	.81	
•	TIME	00.0	0	0	21.0	0	40.0	10.0	70.0	20.0	80.0	50.0	000	60.0	30.0	80.0	60.0	10.0	0.09	020.0	0.060	40.0	200.0	270.0	320.0	380.0	0000

Figure 44. Functional Group Survivor Table for RUN #4

THE PROPERTY AND PROPERTY FERDANCES IN PROPERTY TO SECURE TO SECURE TO SECURE TO SECURE THE PROPERTY OF THE PR

The state of the s

_
TION
REPLICAT
REP
FOR
TIHE
vs.
RESULTS
LINK

******************	* : * :	*	# i	*	**	**	***	***	****	***	****	****	***										
	HA.	ND L	Z .	EPAI	R. DR	HANDLO.REPAIR.DRIVER.RAD	. RA	OIO	• TELE	•	TRUCK	• CRANE		.RIGGER.R/T	R.R/	T 3P.	JP. FKLFT	- CRANE		FKLFT	STORO SHOPE	ACAN	DIC
	• AD		•		•		•	-	•	•		• 0P	•		•	٠				9 O			· ·
L 2	•	•	•	(•	,	•	-	•	•		•	•		•	•		•	•	i	•	•	
בשנו		-	•	2	•	m	•	4	•	•	9	. 7	•	80	•	•	10	•	11:	12	. 13	•	14
0000	•	•	•	•		•	• -	• •	•	•	•	• •	•	• • •	•	• • • • • •		•	•	•	• • • • • •	•	
	•	> (9 (> .	. ~	20	>		20	9		20	- 1	20	50		50	50	50		c
	•	0		0		ပ		0	0		0	0		0		0	C		· C	,			•
		0		0		0		0	0		c	C		· C			•		,	> <	•		> (
		<		<		•		•	•		,	•		>		>	>		>	၁	9		0
	•	٠ د		>		>		0	0		0	0		0		0	0		0	C	C		c
	•	0		0		0		0	0		0	0		0		_	c			•	, (•
	•	C		c		c		c	•		•	•		•) ()		.	>	>		o
		,		•		>		>	>		>	>		o		0	0		0	0	0		0
11.00	•	O		~		0	-, 1	50	0		20			36	ď	9	ď	•	2	Ċ	Č		r
	•	5 <	v	2 < <	v	0		>><	•		779	,		5	•	,	2	•	r	9	20		_
		c		<		c		1 (•		, •			>		//0	2		5	၁	0		0
	•) (> .		•		>	0		0			0		0	0		0	0	C		c
	•	0		0		0		0	0		0	¢		0		0	c		>><	· C	•		•
	•	0		m		C		c	C		<	•		•			•			•	>		>
)		,		,	•		>	.		>		>	>		5	0	0		က

Figure 45. LINK Summary Table for RUN #4

おともか ちょうか からきしおり ちゅうか ちょうじ おおお しまな かっていかい いきじまし しのじし しゅうじゅう しゅうじゅ しゅうしゅん

oure 45 . LINK Summary Table for RIN #4 (con 1+)

m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,2 3,2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	#00002 22	\$ 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	230002
			00000 300000	
%00000 K00000	800000 #00000	2 00000	800000 800000 N	£00000
33 0000	% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

000000 000000	500000 500000	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	× 00000 000000	50000
%00000 m00000	N00000 M00000	H00000 600000	W00000 H00000	m00000
70000 movooo	NT 000 NO 000	# 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MO WO	mo*000
000000 000000	000000 000000	000000 000000	000000 000000	00000
000000000000000000000000000000000000000		**************************************	50000 50000 \$50000	00000
000000 000000	000000 000000	000000 000000	000000 000000	00000
			00 00 00 00 00 00 00 00 00 00 00 00 00	
22 27 27 27 27 27 27 27 27 27 27 27 27 2	× 00 00 00 00 00 00 00 00 00 00 00 00 00	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1000000	0000
• • • • • • • • • • • • •	• • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	1020.00	• • • • •

A High and the second production of the second seco

Figure 45. LINK Summary Table for RUN #4 (con't)

Four AS LINK Summary Table for RIIN #4 (con't)

is used more often. Notice that, as expected, the R/T OP job also appears, as the weakest link in 2 replications. Since the R/T OP link was an essential node in the available chain, and since the R/T OP (person) was a total casualty in 2 replications, the cause of the 2 zero-effectiveness replications in the frequency of results table is now clear. However, looking down to time 61., one sees that the R/T OP link is no longer weakest in any replications. Apparently, in those replications in which it was weakest, some substitute was made. Recalling the (input) substitution table, a number of substitutes are possible: however, all require at least 15 minutes to substitute. Therefore, such substitution was not done by time 11. (The actual substitutions made, of course, are available in the intermediate results by turning RECONSTITUTION on in the OUTPUT.)

Numerous other results are available to study the interaction of various combinations of losses, the ramifications of reallocation decisions, etc. However, it is beyond the scope of this report to detail the importance of every example number. For now, we content ourselves to point out one new occurrence. At time 310., and at intermittent times thereafter, the CRANE OP link shows replications in which it was weak due to limitations in the number allowed in the link. Recall that, in the description of the CRANE OP job, it was stipulated that there could only be one operator per crane. (CRANE was identified as an associated link for CRANE OP.) In this run, replications occur in which the crane team leg of the loading capability is limited by the need to put a less-than-100 percent-effective substitute into the CRANE OP job. Other equal or less effective substitutes were also available; however, the stipulation of one per crane limited further assignment of assets to that limiting link.

The final output tables summarize the results of RUN #4 in terms of the operant chain. The end-of-encounter summaries reveal some interesting interactions between failure, repairs, and lethality. Recall that RUN #3 inputs specified a preponderance of light failures for FKLFTs and CRANEs. However, the lethality data in RUN #4 for those items favored medium damage. As a result, although the failure data was unchanged, the repair load shifted from a predominantly light repair to an approximately even distribution of work. Total failures decreased by 20 to 30 percent, since combat damaged equipment is out of action. Number of repairs completed, (and total number of parts used) was virtually unchanged between RUNs #3 and #4: this resulted from the fact that capability to do repairs-in particular, capability to staff the REPAIR link-was a predominately weak link, as recorded in the LINK RESULTS table.

The complete output of RUN #4 can be found in Appendix E.

G. Stochastic Lethality

In AURA's normal mode, lethality is compiled deterministically: that is, a probability of loss is equated to a fractional loss. Thus, if the lethality routines indicated that a truck has a 0.4 chance of surviving a particular warhead detonation, the code considers 0.4 trucks as remaining. In fact, however, there should be one, or no, trucks

surviving in any one replication, with the latter 1.5 times more probable than the former.

AURA allows the user a stochastic alternative to the deterministic lethality. There is no difference in the lethality routines or data. However, by specifying STOCHASTIC, ON under the MODE mnemonic, the user causes AURA to use a Monte Carlo technique, drawing random numbers against the calculated kill probabilities. These draws determine specific, total casualties and survivors for each event. The code then proceeds exactly as before, using the surviving assets in the same optimum allocation routines, repair routines, etc. While the stochastic model is, in many ways, intuitively more realistic than the deterministic model, the use of additional Monte Carlo processes requires, in general, many more replications to generate a statistically valid sample of results. For that reason, AURA has historically been run in a hybrid mode: stochastic modeling was used for the highly singular effects of warhead delivery and deterministic modeling used for the lethality However, certain studies, in which specific instances of thereof. survivors/casualties are crucial, may require the totally stochastic approach. To demonstrate the effect of stochastic lethality, RUN #4 was repeated, changing only the MODE to STOCHASTIC LETHALITY, ON. The results are shown in Figure 46. Most striking is the similarity in Final averaged effectiveness, for 50-replication averaged results. runs, differ by approximately 3 percent. Similarly, average asset survivors differ in the order of 0.02. Striking differences are seen, however, in the occurrences in specific replications. For example, the frequency distribution of results shows several more 0. effectiveness results, as expected. Similarly, differences are seen in the LINK RESULTS table. However, the smoothing effect of looking at an entire unit, plus the averaging over a large number of replications, leads one to conclude that the final, average unit effectiveness is sufficiently well modeled by the deterministic technique for this example unit.

IX. MULTIPLE MISSIONS

In this excursion, the execution of a competing (non-preferred) mission and a time-sequenced alternate mission are demonstrated. The mission to compete with loading a truck is to take an order on the radio and relay it on the telephone. The LOADMSTR or R/T OP can do this job; however, this mission is a last resort and is arbitrarily valued at 0.3. The sequential mission is to move the unit. For this purpose, a TRUCK, a LOWBOY, DRVR1, DRVR2, and a RADIO are required links.

A. A "Dummy" Link

It is often convenient, especially in cases involving secondary missions, to allow inclusion of tasks other than those done in the standard procedure for accomplishing the initial mission. Such unstaffed tasks have historically been called dummy links. An example of this, the HANDLOAD alternative to using the FKLFT, was briefly discussed in Section II A. To specify a "dummy link," the user need only 1) give the task a unique name, 2) deploy the link as though it were a person or piece of equipment, and 3) include it as any other link in the link

EFFECTIVENESS VS. TIME ***

0		15
1-9	0000000000000000000000000000000000000	•
10-19	ಀಀೢೢಀಀೢಀಀಀೢಀಀಀಀಀಀಀಀಀಀಀಀ	ø
20-29	0000000000000000000000000000000000000	0
30-39	0 000000000000000000000000000000000000	•
40-49	らここここともももちぎぎぎらすでうようみんちゅう	'n
50-59	000000000000000000000000000000000000000	*
69-09	ひまままえるままなままちょう でんてるみろくち	4
70-79		15
80-89	000000000000000000000000000000000000000	0
66-06	000000000000000000000000000000000000000	0
100	20m2rmms4525254444444444444444444444444444444	2
HESS	00000000000000000000000000000000000000	• 351
EFFECTIVENESS		-/+
EPFE		• 56
TIME	0000 11,000 11,000 11,000 2,400 3,400,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 4,200,00 11,400,00 11	1440.30

Effectiveness vs Time Data for RUN #4 with Stochastic Lethality Figure 46.

として、これでは、なかは、関係をおけるは、ものはなかがは、このなっていましたのなかなない。他気

これのないとは、これのないのは、「ないない」というできません。

definition input (after the LINKS mmemonic). In defining the dummy link, those assets which could perform the task, if necessary, are identified as substitutes.

For this excursion, a number of dummy links is introduced. These are listed in Table 4. The LINKS input is shown in Figure 47. Note, particularly, the RELAY link. Since the chain to describe the relay mission will be a simple string of ANDs, that mission will never be evaluated higher than its least effective link. Limiting the RELAY link to a maximum effectiveness of 0.3 therefore limits the relay mission as a whole to a maximum of 0.3. Preference is thus assured for the original loading dission unless it is degraded below 0.3.

TABLE 4. DUMMY LINKS FOR RUN #48

LINK NAME	NO. REQUIRED	MAX E) F	SUBSTITUTES
RELAY	1.	30	LOADMSTR, R/T OP
DRVR1	1.	(100)	PERSONNEL
DRVR 2	1.	(100)	P ER SONNEL

THE TRANSPORT OF THE PROPERTY

```
LINKS
  DRIVER. j., 1.
  SA, TRUCK
  SPERSONNEL
  $T,15.
  SE+.85
  RADIO.1.0
  TELE . 1 . 0
  TRUCK.1.0
  CRANF OP-1-0-1-0
  SA . CRANE
  SFKLET OP. RIGGER, LOADMSTR
  ST, 10., 5., 5.
  $E • 0.8 • 0.5 • 1.0
  RIGGER: 1.0
  SPERSONNEL
  $T+ 5.
  $E . 0.6
  R/T OP+ 1.0+ 1.0
  SLOADMSTR.PERSONNEL
  $1.20..15.
  SE. 1.0: 0.8
  FKLFT. 1.0
  CRANE. 1.0
  FKLFT OP, 1.0, 1.0
  SA. FKLFT
  SCRANE OP. LOADMSTR. PERSONNEL
  $E.0.9. 1.0. 0.2
  $T • 10 • • 5 • • 5 •
  LOADMSTR. 1., 2.
  $M,75
  HANDLOAD. 5.0, 65
  $M.1.0
  *PERSONNEL
  SE.1.
  ST.5.
  PARTS.1.0
  REPAIR.2.0
  SLOADMSTR. CRANE OP. FKLFT OP
  $7.15.,15.,10.
  SE+1.+1.+1.
  RPR ABILITY . 1 .
  LOWBOY . 1 .
  DPVR1.1.
  SPERSONNEL
  $F . 1 .
  $T.10.
  DRVR2.1.
  SPERSONNEL
  SE.1.
  $T+10.
  RELAY.1..30.1.
  SR/T OP+LOADMSTR
  SF • 1 • • 1 •
  ST.0..10.
. END
```

Figure 47. LINKS Input for RUN #4B

B. Chains for RUN #4B

TOTAL TOTAL PROPERTY OF THE PR

Besides the original chain described in Section II.I, two other chains were added for this excursion. The input stream for chains is shown in Figure 48. Notice the insertion of lines beginning with \$T, signifying time intervals during which each chain is operant. The format for the \$T card is:

\$T, start time 1, stop time 1, start time 2,...

Thus, Figure 48 specifies that chains 1 and 2 are operant from start until 540. and from 900. until infinity; chain 3 (the move chain) operates from 540. until 900.

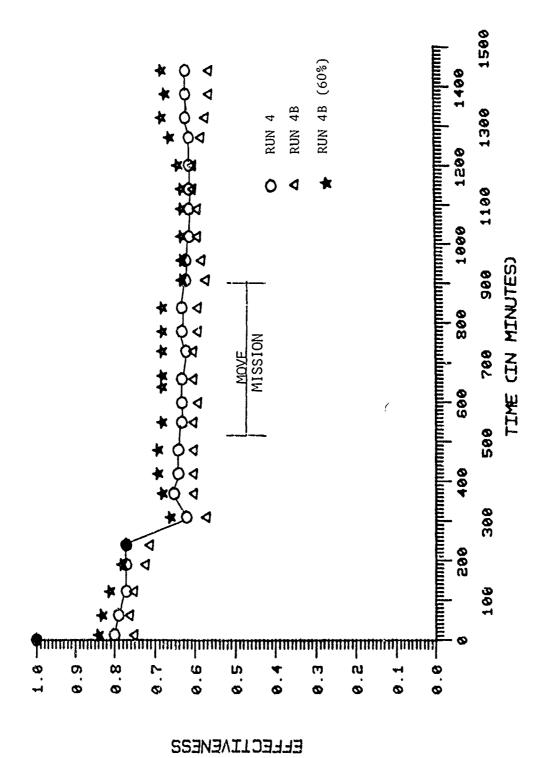
To demonstrate the flexibility in structure of AURA, a further, subtle complication was added to RUN #3B: during the move, all repair activity must stop. There are several ways to cause this to happen. The way chosen here consists of creating (via the REPERTOIRE) an imaginary asset which we call RPR ABILITY, along with a corresponding, simple link. One unit of RPR ABILITY is deployed. (To avoid calculating weapon effects against RPR ABILITY, the deployment point was chosen at infinity. The alternate name satisfies checks for the existence of lethality data.) Therefore, the RPR ABILITY link, which was added to the repair subchain (*3), can be satisfied at time 0. An external loss event, inserted through the LOSSES mnemonic, removes RPR ABILITY at move time (540.), making repair impossible. After the move (time 900.), RPR ABILITY is again inserted using the REINFORCEMENTS mnemonic.

The resulting effectivenesses from RUNs #4 and 4B are plotted in Except for the move mission time interval (540. to 900.), Figure 49. the two are nearly identical. The reason is that the primary (LOADING) mission effectiveness, in RUN #4, seldom fell below 0.3. Therefore, the competing (RELAY) mission was only chosen in approximately 7 replica-(The precise number of uses for each chain, as read from the CHAIN RESULTS on TIME output, varies for different reconstitution times.) Furthermore, since the RELAY chain was limited to an effectiveness of 0.3 and used some of the same assets as did the LOADING chain, there was usually little advantage gained when the RELAY chain was chosen. It was therefore decided to repeat RUN #4B with a 0.6 maximum effectiveness for the RELAY link and chain. The results from that excursion are also plotted, as RUN #4B (60 percent), in Figure 49. As expected, the presence of an alternative generally improves the result. However, since the no-alternative average is near 0.6, the presence of an alternative with a maximum effectiveness of 0.6 has a limited effect on the overall average.

Not shown in Figure 49 is the effect of discontinuing repairs during the move mission. Since repairs were generally going on throughout the entire encounter, one would expect the effect of curtailing repair operations to be proportional to the fraction of time lost. In fact, the decrease from 1.53 to 0.99 reported in the full output (not included in this report) represents a decrease of 35 percent, quite in line with the 31 percent decrease in repair time available.

CHAINS ,
P/T OP; +1. !LOADING TECHNIQUE; TRUCK. ! OADMSTP
%T; 0... 540... 900... 1. F35
PFLAY. RADIO. TELE
%T; 0... 540... 900... 1. F35
DEVRI, DRVP2. RADIO. P/T OP. TRUCK. LOWBOY
%T; 540... 900... ,
END

Figure 48. CHAINS Input Stream for RUN #4B



Graphic Comparison of Effectiveness Results for Runs #4, #4B, and #4B (60%) Figure 49.

Many other excursions could be run to test the interaction of weapon effects and employment, unit capability and deployment, mission requirements, etc.

X. SUMMARY TO VOLUME I

This volume has attempted to introduce the reader to the analysis of an Army unit via the AURA family of methodologies. The approach taken was to progress in complexity from a simple, non-combat scenario to a fairly complete, multi-mission conventional attack. Throughout the report, a simple, hypothetical supply unit was used as the working example. Run #1 involved the basic set-up and description of the unit. Run #2 added equipment failures. In Run #3, unit capability was expanded to include the ability to divert assets to conduct repairs on its own failed equipment. In Section VIII, the fourth series of runs introduced indirect fire attacks against the unit. That section presented both those factors which pertain to the delivery of indirect fire munitions in general and the calculation of the effects of conventional (fragmenting) munitions in particular. Finally, a run (#4B) was done in which the unit conducted one of two missions during certain time intervals (commander selected most effective choice) and conducted a third mission between those intervals, all' of which occurred in a conventional, indirect fire scenario.

In the next volume of this user's introduction, the weapon effects will be extended to include those from nuclear and chemical warheads. Special topics, such as the modeling of degraded individuals will be included.

A third volume is tentatively being planned. In that volume, the conduct of an AURA analysis - from data preparation through analysis of outputs and investigation of results' sensitivities - will be presented from an analyst's perspective.

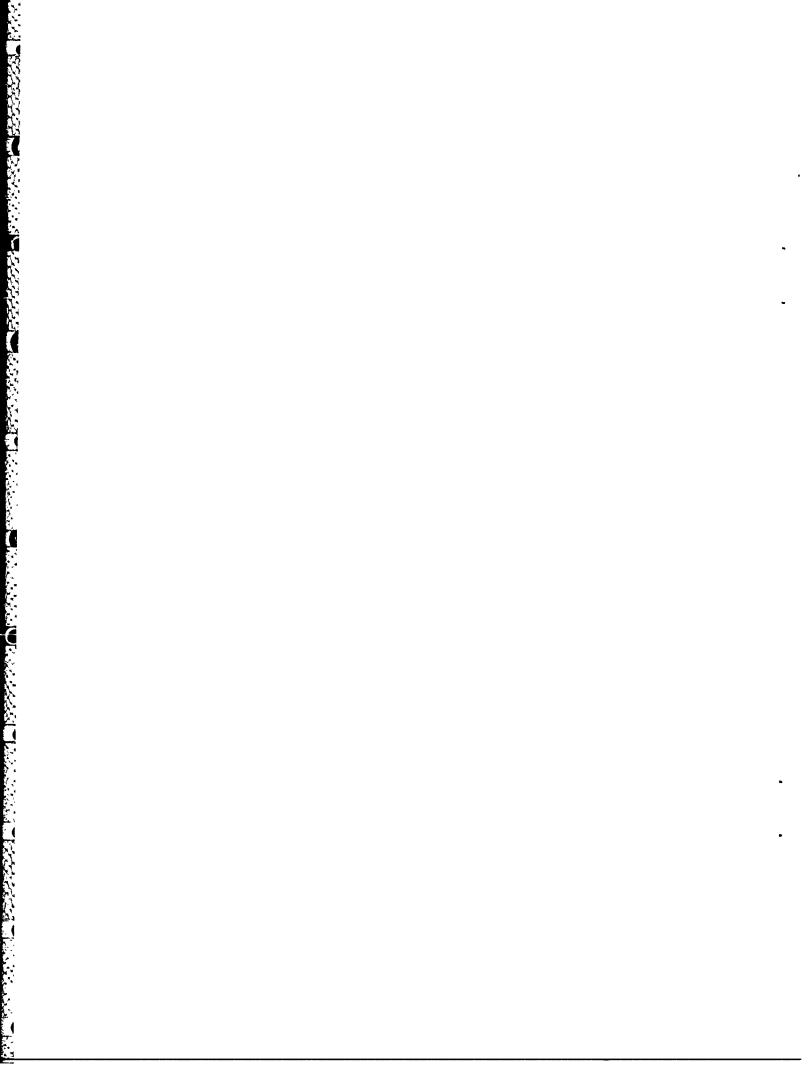
During the writing of this report, it became evident that this work would not fulfill the need for a concise manual to help the knowledge-able user run the code. The computer-resident RCCINFO file, presented in APPENDIX A, is felt to be too concise for this need. Therefore, a fourth publication, an AURA User's Manual, will be written, possibly in conjunction with user's guides to the growing number of utility programs which interactively aid the user in preparation of AURA inputs.

REFERENCES

- 1. J.T. Klopcic, et al, "RCC: A Methodology/Code to Model Residual Combat Capability at the Unit Level," US Army Ballistic Research Laboratory, Technical Report No. ARBRL-TR-02156, April 1979, (UNCLASSIFIED), AD B037451L.
- 2. J.T. Klopcic, et al, "RCC: A Methodology/Code to Model Residual Combat Capability at the Unit Level," Addendum to Reference 1, US Army Ballistic Research Laboratory, Technical Report No. ARBRL-TR-02196, September 1979, (UNCLASSIFIED), AD B042085L.
- J.T. Klopcic and M.A. McDonald, "RCC Methodology/Code Extensions (JUL 80): Failure Model, Repair/Return, Augmented I/O and Division-Level Interfacing," US Army Ballistic Research Laboratory, Technical Report No. ARBRL-TR-02275, December 1980, (UNCLASSIFIED), AD A095346.
- 4. J.T. Klopcic and J.J. Baldauf, "The BRL Chemical Protection Degradation Model: The Degraded Effectiveness Algorithm, Degradation Matrix, and 'MOPPDAT' Individual Performance Database," US Army Ballistic Research Laboratory, Draft Report, (UNCLASSIFIED).
- 5. J.T. Klopcic and J.C. Maloney, "New Nuclear Vulnerability Database, Input Format and Supporting Software for RCC," US Army Ballistic Research Laboratory, Memorandum Report No. ARBRL-MR-03001, March 1980, (UNCLASSIFIED), AD A084982.
- JTCG/ME, "Simplified Weapons Evaluation (QUICKIE) Computer Program,"
 JTCG/ME-77-1, 25 February 1977.

APPENDIX A

RCCINFO



INPUT INFO FOR 1URA *****

C

ø

٨ **5** 7.5 7.5 7.5 27 v ı UPDATED CONTAINING RUNSTREAM OF FILE NAME FROM INPUT, RE ADING, 3 BEGINS PR JGRAH

FILE AFTER INPUT BE WRITTEN ATCP DUTPUT, £ A MESSAGE CARD, USER MAY INSERT

FULLOXING MESSAGE, NSER MAY INPUT CFFSET(X,Y) (CARC CONTAINING 2 F.P. NUMBERS (SEE OFFSET OPTION UNDER ENCOUNTER INPUTS, BELOW)

PUNSTREAM DATA IN THE Ä FOPMAT 포 DESCRIBES FULLOWING

SENERAL

RCC INPUTS ARE ALL YNEYDNIC AND FREE-FIELD (AND MACHINE INDEPENDENT, ALMOST). THREE FORMS OF INPUT HOLLERITH, ONE HOLLERITH NAME (TWO WORDS) FULLOWED BY NUMBERS (FIXED AND F.P., MIXED), AND ALL NUMBERS. HOLLERITH STRINGS ARE SEPARARTED BY COYNAS. BY COMMAS OR SPACES. LEADING BLANKS ARE IGNORED. THE GENERAL FORM OF A RUNSTREAM IS AS FOLLOWS REPERTOIRE: ALL NAMES TO BE USED FOR FUNCTIONAL GROUPS AND WEAPONS

STANDARD ENCOUNTER. : ALL DIHER DATA, INCLUDING PROGRAM CONTROLS, FOR THE TO INDICATE TYPE OF DATA INPUTS: REPERTOTRE: END

1 ENCOUNTERL INPU MNEMONIC DATA

ONLY PRESENT, ¥ CARDS. MISSING FND (NOTE, HOWEVER, THAT RCC TRIES VERY HARD TO COMPENSATS FOR CARD AFTER THE REPERTOIRE IS ESSENTIAL) AFTER THE DATA IS IN:

9 SCAN THE PROGRAM EXECUTES ONE ENCOUNTER AND RETUPNS FOR NEW ENCOUNTER INPUTS

STOP ENDS PROGRAM
SPECIAL FEATURE: A CARD BEGINNING WITH A DOLLAR SIGN, \$, IS INTERPRETED AS A CONTINUATION OF THE PIRECEDING HOWEVER, CERTAIN INPUTS MAY ALCHAU UPTIONAL DATA TO BE INSEPTED ON CAPDS WHICH BEGIN WITH A \$

THESE INPUTS ARE IDENTIFIED IN THE FOLLTWING PAGES. IF JPTIONAL JATA CAN BE INPUT ON A FOLLOWING & CARD, NO CONTINUATION OF THE PRECEDING CARD IS POSSIBLE.

NO CONTINUATION OF THE PRECEDING CARD IS POSSIBLE.

ANY CARD WHICH BEGINS WITH A TIC-TAC-TOE SIGN, #, IS ASSUMED TO BE A COMMENT CARD, AND IS IGNORED.

COMMENTS CAN ALSO BE INSERTED DIM ANY CARD AFTER THE CARD'S DATA BY USING A 4. ANY & AFTER COLUMN ONE ENDS S

OR LESS CHARACTERS LONG (AND FUNCTIONAL GROUPS MAY BE 13 'BLANKS STOPS THE SCAN OF A CARD. NAMES OF WEAPONS ANY STRING OF 18

- * LISTING ** ANY ITEM IN SQUARE BRACKETS [] IS NOT ESSENTIAL TO THE INPUT FORMAT, BUT CONVEYS ADDED
 INFORMATION. NESTEO BRACKETS INDICATE OPTIONS Y/IN 19TIONS. PARENTHESES () ENCLOSE COMMENTS FOR THIS
 ** IN THIS OFFUMENT, A QUOTE SIGN, ", IS USED TO INDICATE INPUTS THAT MUST APPEAR EXACTLY AS DELINEATED.
 THE USER NEVER INPUTS QUOTE SIGNS . **
- COMPILATION TIME. ANGULAR BPACKETS ARE USED TJ INDICATE MAXIMUM NUMBER DF ITEMS OP CONSTRUCTS ALLOWED. NOTE, HOWEVEP, THAT THE JIMENSIONS JF AURA ARI PARAMETEKS WHICH CAN BE RESET BY THE USER AT THEREFORF, THE < > NIMBERS REFER ONLY TO THE VALUES IN THE BRL VERSION OF AURA AS OF THIS UK *
- OFHERAL MAXIMA APPLY ACPOIS SEVERAL INPUIS: < MAX. NO. TE EVENTS DE ANY KIND: 34.2 EVENTS > < MAX. NJ. DE RECONSTITUTION EVENTS, INCLUDING INITIAL RECONSTITUTION (INSERTED 3 JAE

*

500

8

```
AFTER AN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOME NAMES MAY BE COMMON TO SEVERAL ASSET S OR WEAPONS. THIS ALLOWS SUBSCRIBING A COMMON CHARACTERISTIC
TO SEVERAL ITEMS BY ATTACHING THE CHARACTERISTIC TO THE COMMON NAME.
ASSET OR WEAPON NAMES MAY BE INPUT IN ANY ORDER, OR MIXED, AS LONG AS AN ASSET OR WEAPON CARD PRECEDES THE NAMES.
FOR SECTIOARY EXPLOSION, ASSOCIATE EXPLOSIVE WITH TAPGET. EXPLOSIVE MUST APPEAR IN BOTH TARGET AND WEAPON REPERTOIRE
THE NAME PERSONNEL! MUST BE UNE OF THE ALT. NAMES FOR ALL PERSONNEL IF TOXIC OF NUCLEAR ARE BEING PLAYED
TOXIC WEAPONS SHOULD HAVE ALT. NAME "TOXIC! OP "CHENICAL". SIP." NUCLEAR WEAPONS SHOULD HAVE "NUCLEAR" OR "NUKE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ARE IDENTIFIES AS CHCOUNTER TIME (CLOCK) OR TIME INTERVALS (INTRVL) — USED TO INPUT A PERIOD OF TIME
SUBSEQUENT DATA CARDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MAX: 151 ASSETS, 453 TOTAL NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           293 TOTAL NAMES
                                                                                 SAVES JANNING MESSAGES FOR PEPEAT AT FND OF RUN
SAVES JANNING MESSAGES FOR PEPEAT AT FND OF RUN
INPUTS CONVENTIONAL LETHALIYY DATA
INPUTS NUCLEAR VULARRABILITY DATA
INPUTS CHEMICAL DISSEMINATION OATA
INPUTS CHEMICAL DISSEMINATION OATA
NORHAL JUTPUT
REPLACES 5 IF "PRINTT" IS OH (UNDER "DUTPUT" HNEHOMIC)
HOLDS INTERHEDIATE RESULTS IF "DUHPPB" IS ON
HOLDS COLOAL WEAPON BURSTS FOR GRAPHICS POSTPPOCESSOR
IF "DUMPP" IS ON
CONTAINS ETT/PC! PESULTS IF "TIPC!" IS ON
INPUTS SUB-IMMEDIATELY-LETHAL HUCLEAR FOSE DEGRADATION
SCRATCH UNIT (USED IN CHIPPLT, E.S.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      < MAX: 03 YEAPONS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENTS ON REPERTUING INPUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           •••••••••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTIONAL GROUP ( OR ASSET OR ASSETS )
FUNCTIONAL GROUP NAME: L'A ALT. MAME, FUNCTIONAL GROUP NAME; C'A ALT. MAME, ALT. MAME, FUNCTIONAL GROUP NAMES C'ALT. NAME, ALT. MAME,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WEAPON WAMEL I'S ALT. NAMES ALT. NAMES .... I WEAPON NAMEZ I'S ALT. NAMES ALT. NAMES .... I WEAPON NAMES I'S ALT. MAMES ALT. NAMES .... I
                                                                                                                                                                                                                                                                                                                                                                                                                   REPERTOIRG 14PUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E4COU1TER INPUTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JAIT INPUTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FORMAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ::::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FORMAT
                                                                                   NOTE: TIME?
MNEMONIC
                                                                                                                                                                                                                                                                                                            322
00000000000000000000
```

ASSET HAME THE ALAKM < MAX: 5 ASSETS > TEAPOR THESHILL DUSAGE FOR ALARM TO SOUND

USED FOR I/O IN AURA:

ARE

(ONI TS)

THE FOLLOWING FILLS

č

```
******* HITE: #UST READ IN TOXIC DISSEMINATION DATA FIRST, SO CODE CAN ADJUST FOR DOSE NORMALIZATION *******
ALARMS ARE "EPLOYED BY ASSET NAME LIKE ANY OTHER EQUIPMENT

*** NUTE: ALARMS WILL HAVE NO EFFECT ( WILL BE TOD LATE ) IF PERSONNEL BEGIN TO HOPP-UP

*** NUTE: ALARMS WILL HAVE NO EFFECT ( WILL BE TOD LATE ) IF PERSONNEL BEGIN TO HOPP-UP

*** NUTE: ALARMS WILL HAVE NO BRIVES. ( SE "MGPP" OIRECTIVE ( *ROUND YES! OPTINS ) BELOW )

LINKS, AND/OR SUBGLINER OFF AND ON" WITH TIME TO PLAY MISSION CHANGES WITH TIME

TO NO THIS, FOLLOW EACH CHAIN CARD(S) WITH

*** TIMES S(I) ARE THE (REAL) START TIMES FOR THE MISSION AND T(I) ARE THE CORRESPONDING STOP TIMES

SEVERAL MISSIONS MAY PLAY AT ONE TIME, BUT AT LEAST ONE MUST BE OPERANT AT ALL TIMES

DEFAULT: S1 = 0., T1 = 1.625 ( INFINITY )

LINKS MIST 36 DEFIPED PRIOR TO "SE TIME ( MUST BELOW

**** CLEAR ALL PREVIOUS CHAINS* INPUT: SEE LINKS BELOW

LINK ( REAL ) MAXIMUM CONTRIBUTION OF THIS LINK

LINK, ( REAL ) MAXIMUM CONTRIBUTION OF THIS LINK

LINK, ( REAL ) MAXIMUM CONTRIBUTION OF THIS LINK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ASSETS, CHAIN NUMBERS) — ITSH WHICH COULD BE USED ALTHO CONTAMINATED BY PERSONNEL IN MOPP
ASSETS ARE THE NUMBERS, IN ORDER CF INPUT.
IF CHAIN NUMBERS ARE THE NUMBERS ARE DAILY BY USABLE IN ALL CHAINS
IF CHAIN NUMBERS ARE DAILY THEN ALL ITEMS ARE USABLE IN CHAINS SPECIFIED

17 ION: IF ASSET IS "ALL", THEN ALL ITEMS ARE USABLE IN CHAINS
17 ION: IF ASSET IS "ALL", THEN ALL ITEMS ARE USABLE IN CHAINS
18 ION: IF CT PT. [C-] NO. THERE, CNV. KILL CRIT., NUC. K.C., TOXIC K.C., POSTURE CODE, NUC COVER CODE, MOPP
ASSETX, THE TAY BE REAL OR INTEGER, NEGATIVE NO. THERE INDICATES A DUMY TARGET)

( 4.9. THESE HAY BE REAL OR INTEGER, NEGATIVE NO. THERE INDICATES A DUMY TARGET)

( 5.0NIINUATION CARD ($) FOR POSTURE CHANGES. FORMAT: 1

S NEW CONV. CUVER, NEW NUC. COVER, TIME TO CHANGE POSTURE, NEW MOPP, TIME TO CHANGE POSTURE

$ 15 YEW CONV. COVER, NEW NUC. COVER, TIME TO CHANGE POSTURE

* 15 YEW CONV. COVER, NEW NUC. COVER, TIME TO CHANGE POSTURE

* 15 YEW CONV. COVER, NEW NUC. COVER, TIME TO CHANGE POSTURE

* 15 YEW CONV. COVER, NEW NUC. COVER, TIME TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, TIME TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, TIME TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, NUC. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, THE TO CHANGE POSTURE

* 15 YEW CONV. COVER, THE TO CHANGE POSTURE

* 15 YEW COVER. THE TO CHANGE POSTURE

* 15 YEW COVER. THE TO CHANGE POSTURE

* 15 YEW COVER. THE TO CHANGE POSTURE

* 15 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IT'1S CAN 3E EYPENDED IN TWO WAYS: BY TIME OR BY REPAIRS THAT USE UP THE ITEM:

FUR TIME——FPENDENT EXPENDITURE, THE AMOUNT THAT IS USED UP

SUBTRACTED FROM THE SURVING ASSETS DURING UPDATE, AND THE FFECTIVENESS

AMOUNT IF YISSION THAT SIDENT SINCE THE PRECEDING UPDATE, AND THE FFECTIVENESS

OF THE UNIT DURING THAT MISSION TIME. (MISSION THE IS THAT THE WHICH

FOLLOWS A RECURSTITUTION AND EXTENDS UNTIL INTER OUP ION BY A LETHALITY EVENT.)

THE RATIONAL IS THAT A UNIT USUALLY EXPENDS ITEMS WERE IT SHORKING.

AND AT A PATE THAT IS PROPORTIONAL TO THE RATE AT WHICH IT IS WORKING.

AND ATER THE EXPENDED BY THAE MEED ONLY APPEAR AS FUNCTIONAL GROUPS (IN THE REPEPTIVE)

AND ATER THE EXPENDED BY THAE MEED ONLY APPEAR AS FUNCTIONAL GROUPS (IN THE REPEPTIVE)

ITEMS WHICH APE EXPENDED BY THE NEED ONLY APPEAR AS SOCIATED LINKS. LINK

ITEMS WHICH APPEAR AS FUNCTIONAL GROUPS AND ASSOCIATED LINKS. LINK

FOR PETALE THE EXPENDIBLE, RETURN OF X AMOUN, OF REPAIRED

ITEM USED UP TO A THAT WAS CARE OF THE TEMP OF THE THAT IS WORTH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ITEM USES JP X**J,3-DF-ASSET-FOR-MAX-CAP EXPENDIBLE ( SEE LINKS, BELOW
THERTEJRE, A PEPAIP-EXPENDIBLE LINK IS PARAMETERIZED FOR ONE REPAIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *** NOTE ON RANGES OF CODE YUMBERS ***
CONVENTIONAL KILL CRITERIA, POSTURES - UNLIMITEC ( SEE CONV. LETH. DATA, BELOW
HUCLEAR KILL CRITERIA - ( 1-5 ) . NUCLEAR POSTURES - ( 1-61 )
TOXIC KILL CRITERIA - ( 1-20 ) . TOXIC POSTURES - ( c-6 )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ASSET, RATE ( FOR TIME—DEPENDENT EXPENDITURE OF SPECIFIED ASSET )
*ASSET ( FOR REPAIR—DEPENDENT EXPENDITURE, NOTE THE * MUST BE IN COLUMN 1 )
ASSET ( ILL BE USED UP IN REPAIRS, AS A FUNCTION OF REPAIR COMPLETION NOTES OF BELL BE NOTES ON EXPENDIBLES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HOTE: SEE ALSO OFFICE AND DISCUSSION OF COORDINATES, BELOW ***
STC.
NEXT ALARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CONTAMINATED USAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPOUND LINK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEGRADATION
DEPLOY
```

AND DEFLECTION ASSETS AND DEFLECTION 0EV) IF TIME IS PRESEUT, IMPUT IS AN EVENT (CHANGE IN VALUE DURING ENCOUNTER). ELSE - INITIAL VALUE TND. DEVS. EXTREMA DELIVERY ERRORS (REAL) ARE INPUT AS SINGLE AXIS STANDARD DEVIATIONS (= SORTS(VARIANCES)) A NORMAL (GAUSSIAN) DISTRIBUTION IS ASSUMED — UNLESS —
ERRORS ARE IMPUT AS NEGATIVE (PELL) NUMBERS. —
ANY ERROR VALUE IMPUT AS NEGATIVE IS DRAWN FROM A UNIFORM DISTRIBUTION WITH RANGE AND DEF
NUMBERS INTERPRETED AS LIMITS (+ AND —) OF THE UNIFORM DISTRIBUTION
NUMBERS INTERPRETED AS LIMITS (+ AND —) OF THE UNIFORM DISTRIBUTION
NOW ALL AND UNIFORM STRIBUTIONS CAN BE MIXED IN ONE DELIVERY ERROR INPUT
(E.G. CORROLATED ERRORS COULD BE NORMALLY DISTR., AND INDEP. ERRORS UNIFORMLY)
THE POS. AND NIG. INPUTS HAVE THE SAME OPTIONS, FORMATS DEG. LENGTH OF PATTERN OF MIDPT. DISTANCE OF P - INDEP., CORR., HOS ERRCR MAX: 103 THE(CLOCK), I ANGLE IN DEGREES (SEE COORD NOTE ABOVE)

VEAPON NAME, TIME(CLOCK), DGZ X, Y, Z

E TIME(CLOCK), I DERORY AND EPRORY (
ETME(CLOCK), I DERORY AND EPRORY AND EPRORY AS SIND.

IF VALUES ARE STORITIVE, FRONS ARE PICKED FROM NORMAL DISTRIBUTION WITH ERRORX AND ERRORY AS SIND.

IF VEGATIVE, ERRORS ARE PICKED FROM UNIFORM RANDOM DISTRIBUTION WITH ERRORX, ERRORY AS + AND - EXTREINTY OF THE CHANGE EVENTS, INCLUDING INITIAL SET >

AND INTERNATIONAL COLLEGE OF THE CHANGE OF MIDPT - X, Y, Z, NO. RNDS, DIRECTION OF MOVE OF MIDPT. DISTANCE (
EN ALD BE ADDITIONAL VOLLEYS, TIME(INTAVL) BETWEEN VOLLEYS, DIRECTION OF MOVE OF MIDPT. DISTANCE

(THIS ALLUY INPUT)F A MOVING BARRAGE) 20 WEAPON NAME, I TIME(CLJCK), J RANGE ERRORS — INDEP., CORR., DEFLECTION ERRORS — INDEP., CORR., LIKE DELIVERY ERROR, BELOY, BUT WITH RANGE AND DEFLECTION ERRORS IN CEP INSTEAD OF STND. DEV. I TIME(CLOCK), J SERDORX AND ERRORS IN CEP INSTEAD OF STND. DEV. LIKE ILC. BELOY, BUT WITH RANGE AND DEFLECTION ERRORS IN CEP INSTEAD OF STND. DEV. AMX: 33 TLE CHANGE EVENTS, INCLUDING INITIAL SET > WEAPON NAME, I TIME(CLDCK), J PANGE ERPORS — INDEP., CORR., DEFLECTION ERRORS — INDEP., CORR., RANGE ANY PIGHT-HANDED X-Y SYSTEM MAY BE USED FOR CEPLOYMENT EMPLOYMENT AIMPOINT IS INPUT IN TARGE? COORDINATES TARGET CORDS AME RELATED TO (WEAPLN) RANGE AND DEFLECTION (FOR INCOMING FIRE) THROUGH THE INCOMING FIRE DIRECTION THOUT ANGLE THAT ANGLE IS SPECIFIED IN DEGREES FROM THE TARGET +X ANS. THUS, FIRE COMING IN THE DIRECTION OF +X IS 3, +Y IS 90, ETC. ETC. AS ORLINKS, BASIC QUANTIFYING UNIT IS A LINK, LINKS MAY STAND ALONE AS SEGMENTS OF A CHAIN, OR MAY BE COMBINED INTO SUBCHAINS, ORLINKS, THE HIERARCHY OF FUNCTIONAL ENTITIES IS:
CHAINS — COMPOUND LINKS — ORLINKS — SUBCHAINS — LINKS EACH EXIITY MAY BE MADE UP OF VARIOUS ENTITIES OF LOWER ORDER NOTES ON UNIT STRUCTURE NOTES ON COORDINATES IMPUTS NOT 2: NOTE: HEAPON SECONDAPY EXPLOSIVE SIGHIFICANCE EPP.JR FIRE INCOMING CEP ERROR DELIVERY 7.5

CEP

111

一般などのなど

DIPECTION OF NOWE IS MEASURED COM FROM +X IN TARGET COURD. SYS. (SEE NOTES, ABOVE

:31C:

OF THE PATTERN (DEGREES) IS MEASURED FROM THE INCOMING FIRE DIRECTION (THE RANGE AXIS ANGL IN DEGREES (SEE CODRO NOTE ABOVE) DIRECTION TIME(CLOCK), 1

LETHALITY INPUTS

```
"RECOVERY THE", TROYRE CHALLE THAT AIR IS CLEAR AND RETURN TO DRIG. MOPP POSTURE ( DEFAULT = 30.) TROYR IS THE TO PEALIZE THAT AIR IS CLEAR AND RETURN TO DRIG. MOPP POSTURE ( DEFAULT = 30.) TROUND YES' [, TIME FOR FALSE ALAPM], OR 'ROUND NO' ( IF YES (DEFAULT), PERSONNEL CHANGE MOPP ON ANY INCOMING ROUND )

( IF YES (DEFAULT), PERSONNEL CHANGE MOPP ON ANY INCOMING NO UNHOPP ( DEFAULT = 10.) )

( FALSE AT THE SPREAD', STAPTH THE "TIME THAT ROUND IS NOT TOXIC, AND UNHOPP ( DEFAULT = 10.) )

( STAPTH IS THE (REAL) FRACTIONAL STND, DEV, IN MOPP TIME ( DEFAULT = 2.) )

DESCRIPTION ( <= 12 CHAPPARM - DATA READ FROM UNIT 3 ( SEE NUCLEAR DATA, BELOW ) )

TRANSMISSION FACTOPS APE THE RAITOS BETWEEN "INSIDE" AND FREE-FIELD DOSE FOUR FACTOPS APE THE FOLLOWING URSER: (N.N.), (G.N.), (G.G.)

WHERE (N.G.) IS THE NUMBER OF GAMMAS INSIDE DUE TO I NEUTRON OUTSIDE, ETC.

IF JULY GHE FACTOR IS GIVEN, IT IS USED AS (N.N.) AND (G.G.) AND (G.N.) ARE SET TO 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EQUIPMENT ARE GIVEN PARTICULAR POSTURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OPTION: A CONTINUATION CARD BEARING A ASSET ( LIKE A VEHICLE ) NAME ATTACHES THERMAL PROTECTION AND VULNERABILITY OF THE NAMED ASSET TO THE USER-CHOSEN CODE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'ALL CLEAR YES', OR 'ALL CLEAR NO!

( IF YES (DEFAULT), ALL PERSCNNEL UNMOPP WHEN LAST OF CONTAHINATION IS GONE )

( IF YES (DEFAULT), ALL PERSCNNEL UNMOPP WHEN LAST OF CONTAHINATION IS GONE )

"PRUXIMITY", DIST ( WHERE DIST IS DISTANCE FROM A WARHEAD ( IN X AND Y — DEFINES RECTANGULAR

WITHIN WHICH A TGT PT MUST LIE FOR AN ASSET AT THE TGT PT TO "HEED" THE INCOMING RO. AND M

( SEE "ROUND YES" OPTION BELOW ) ( DEFAULT IS DIST " INFINITY ( 1.635 ) )

"RECONSTITUTION YES", OR "RECONSTITUTION NO!

( IF YES (DEFAULT=NO), ALL PERSONNEL ARE AUTOMATICALLY MOPPED AFTER RECONSTITUTION

AFTER ANY TOXIC ROUND. NEGATES PROXIMITY OPTION )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUCLEAR POSTURE CODES 1 — 2 ARE RESERVED FOR OPEN, OPEN-BUT-THERMALLY-SHIELDED, AND FOXHOPERS INNEL IN CODES 1 — 3 APE SUBJECTED TO BLAST AND THERMAL KILLS IN ACCORD WITH USANCA, NO SHIELDING VEHICLE CAN BE ATTACHED TO 1 — 3 VIA ABOVE OPTION NUCLEAR PISTURE CADES 4, 5 DEFAULT TO TRANSMISSION FACTORS FOR APC AND TANK RESPECTIVELY HOWEVER, NO ASSET IS ATTACHED UNLESS INPUT BY USER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEAR OR TOXIC
DESCRIPTION( <= 12 CHARACTER HOLLARITH STRING, KILL CRIT., LETHAL DOSE
KILL CRIT. IS CODE NO. SPECIFIED ON DEPLOYMENT CARDS: NUC < 1-5 >, TOX < 1-20 >
LETHAL DOSE IS IN RAD3 (NUKE)
LETHAL DOSE IS RELATIVE TO "STND. LETHAL DOSE" ( AS USED TO NORMALIZE UNIT 4 ) FOR TOXIC
DESCRIPTION ( <= 12 C-ARACTEF HOLLERITH STRING ), USER-CHOSEN CODE < 0-3 > , TRANSHISSION FACTOR
TRANSHISSION FACTOR ( 0.0-1.0 ) GIVES AMOUNT OF DOSAGE COMPARED TO OPEN AIR
OTHER OPTIONS:
                                                                                                                                                                                                                                                       NEXT CARD
NOT INPUT
                                    DATA
                                                                                                                                                                                                                                                N 00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENTLY, MUCLEAR POSTURE CODES ONLY AFFECT PERSONNEL. EQUIPMENT THROUGH CHOICE DF NUCLEAR VULNERABILITY DATA ( ON UNIT 3 )
( ND JATA FJLLNYS IN RUNSTREAM — DATA READ FROM UNIT 2 ( SEE CONVENTIONAL MIN DOSE, VALUE ( MINIYUM DASE TO BE PROCESSED FOR ETI, RAD DEATH )

"AX DASE, VALUE ( DOSE ABOYE WHICH DEATH IS INSTANTANEOUS )

DOSE BYIS, TINI, JINZ, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TL CONTROLS ETI/PCI USAGE (MAINLY FOR SEMSITIVITY STUDIES) )

1 VIS. DIS. USES N/GAMMA PATIG ( DEFAULT )

1 TIME—DE—DETH ) BUT NO ETI

2 : NO T—D—TH ) R ETI

3 : N/GAMMA FORCED TD 3.0

4 : " " 0.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . P A W DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MICHTLAVALUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBLETHAL DOSE DEGRADATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <VALAURC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOPP
```

LINK WAYE, DEGRADATION CODE NUMBER — ASSECIATES DEGRADATION DATA SET OF CORRESPONDING CODE NUMBER (INPUT VIA UNIT 11) HITH ANY INDIVIDUAL ASSIGNED TO NAMED LINK. DEFAULT = 0. ('JSED TO DETERMINE DERFORMANCE DEGRADATION AS A FUNCTION OF DOSE AND ELAPSED TIME.) 'ATHOSP HERE,' QUALITY — WHERE QUALITY HUST BE ONE OF THE FOLLOWING WGRDS: 'GOOD'S, LAVERAGE! (THE DEFAULT), OR "VORMEN" (THE CEFAULT), OR "WINTER! 'UNITED OPTION: 'UNITED AND CESS ARE AUTOMATED IN COURSE!	DE) DESCRIPTION(<= 12 CHARACTER YOLLARITH STRING, KILL CRITS, DOSE MULTIPLIER KILL CRITS IS CODE NJ. SPECIFIED ON DEPLOYMENT CAROS < 1-20 > DOSE YOLTIPLIEP ALLOWS FOLKS AT SPECIFIED TO TO TO GET A HIGHER DOSE (E.G. DUE TO HIGHER RESPIRATION RATE) FOR HIGH RESP. RATE, DOSE HULTS > 1. FOR NORMAL FOLKS, DOSE MULTS = 1. PECALL FOR DISYLE DOSE TS PELATIVE TO METAL. DREW (AS INCED TO NORMALTE DINTER)		CONTROL INPUTS	READ THE HELLERITY STRING — ENCOUNTER CALCUILON , READ THE HELLERITY STRING — ENCOUNTER COITOUT HEADING GPTION, 134° DR 19FF . CODE (DUMPS A NUMBER OF CALCULATIONS FOR CORE-DEBUGGING) DESUG (PROCESS INPUT, SUT DO NOT EXECUTE) HETICULOUS (PROTEILIOUS HANDLING OF COMPOUND LINKS - MAY BE TIME-CONSUMING) PRITATY (FOR COMPOUND LINKS, TAKES OF PARTS IN THE ORDER PRITATY (FOR COMPOUND LINKS, TAKES OF PARTS IN THE ORDER	PART UNLESS ALL PREDECESSORS HAVE BEEN IMPROVED) STOCHASTIC LETHALITY (44FN DN, ALL KILLS ARE O DR 1. LETHALITY ROUTINES DRAW A RANDOM NUMBER FROM A UNIFORM (0.1) DISTRIB. AGAINST PK. WHEN DFF (DEFAULT). FRACTIONAL KILL * PK) (NOTE ON IMPLEMENTATION: OLLY ONE STOCHASTIC PK IS DETERMINED PER TOF PT PER ASSET PER ROUND. THUS, MULTIPLE ITEMS AT ONE DEPLOYMENT POINT (*NO. THERE*) ON DEPLOYMENT CARD (SEE "DEPLOY" ABOVE)) WILL BE KILLED AS A GROUP. NOT INDEPENDENTY)	TIMESCIN	OPTION, "ON" OR "OFF" (OR "PARTIAL" OR "FULL", AS SPECIFIED) OPTIONS: BI"S, STRIL, STPIL, STRIZ, STP2, (DUMPS CONTENTS OF ALL DOSAGE BINS AT ALL RECONSTITUTIONS THAT OFCUR BETWEEN THE SPECIFIED START AND STOP TIMES) CASUALTIES (INCLUDES MEAPON INFO IF "WEAPON" ISN'T ON) CHALLY OF PRINTS LINE—PRINTER PLOT OF CHAINS. DEFAULT=ON)	DOSÉ (MUCLEAR AND TOXIC) DOSÉ (MUCLEAR AND TOXIC) DOMPS (MRITÉS — ON UNIT 8 — TIME, FFF.,WK LHK, STR CHN FOR EVERY RECONST.) DUMPS (MINRY WRITES — ON UNIT 9 — REPL, RČ 10, TIME, AGZ, DGZ FOR EVERY ROUND) ETIPCI (ATT—END—MARPAGE OF ETIS AND PCIS VS. TIME) IMPUT LISTINS (CIOE—INTERPPETED) INPUT DATA AT TOP OF OUTPUT. DEFAULT—ON)	ITEPATION(OUTPUT AFTER EACH) LITY (LISTING UF UNIT 2, UNIT 3, +/- UNIT 4 AT END OF RUN)(DEFAULTON) LINK SUMMANI, LINKI, LINKI, LINKI, LINKI, LINKI, LINKI, LINK SUMMANY, OFF (NO. TIMES WEAKEST BY CHAIN 4 MAX: 12 >) UPTIMIZE, STRIL, STPL, STRIZ, STP2, 0 OUMPS WALK-BACK INDO AND EFFECTIVENSS PARABETERS EGR. FUERY SUBSTITUTION ATTEMPTED DURING EVERY LINK OFTHIMIZATION DURING ALL	RECONSTINCT ON THAT OCCUR BETWEEN THE SPECIFIED START AND STOP TIMES) POSTURE (PEPORTS ALL POSTURE CHANGES) (PARTIAL SUPPRESSES EACH INDIVIDUAL INTO MOPP REPORT) PRINT (PAINT ON ALT, PANT, FILE 7) RAYDON NUMBER (AT START OF EA, ITEP,) (DEFAULT-ON) PROCONSTITUTION (JUTPOL AFTER EACH) (PARTIAL GIVES LINKS GNLY) REPAIR SPORT (ALL REPAIR SPORES AND RETURNS) (FOLL GIVES COMPLETE JUNKYARD STAUS, EA, RECONST, STYLARY (NA HEZ, "14 HEZ, "14 HEZ, "18 S NOW ARY OFF (SUP OFF SURVING SAME NAME * MAX: 13 >))
THERMAL	T.K.C. (TOX.KILL CODE)	TOXIC DATA YIELD	G	HEADING MODE	113	Internal Recuns, Time	OUTPUT OPTIONS			

CLEAR REMOVES THE OPTION TIME ASSETS TO BE INCLODED IN CADALITY REPORTS. CONTAMINATIONS, ETC. *CLEAR* REHOVES THE O ASSETS TO BE INCLODED IN CADALITY REPORTS. CONTAMINATIONS, ETC. *CLEAR* REHOVES THE O ASSETS TO BE INCLODED IN CADALITY REPORTS. CONTAMINATIONS, ETC. *CLEAR* REHOVES THE O THER. *OTHER **OTHER ** PLOT SEEDS (RANDOM NUMBER) SELECTIVE DEPLOYMENT STOP RECONSTITUTION EVENT REPLICATIONS SUBSEQUENT MISSION *** CURRENTLY *** *** DISABLED ***

CONVENTIONAL LETHALITY DATA (UNIT 2)

CARLETON FUNCTION, 3 = 1-CONTOUR CODKIE CUTTER, 4 = ICM, 5 = 2-CONTOUR COOKIE : 5 = 3-COOKIE, 7 = FRONT/BACK ASYMETRIC CARLTON
: 8 = ASYM. 1-COOKIE, 9 = ASYM. 2-COOKIE, 1- ASYM. 3-COOKIE
: (ASYM. FOR ITSET ASYM. 2-COOKIE, 1- ASYM. 3-COOKIE
: (ASYM. FOR INTER AS FOR ITSET X P. BURST, RY, RX FOR IRGT X - BURST)

(RCC CONSTRUCTS RANGES ABOUT EACH LETHALITY APPLIES
(RCC CONSTRUCTS RANGES ABOUT EACH HOB TO INTERPOLATE FOR ANY HOP) RX, RY, ~ RX, VALUES VALUES VALUES ...NHDB*NPOSTURES*NKILLCAITERIA DATA CARDS... A SEAL) V S JATA TYPE 2: 3 JATA TYPE 2: 3 JATA TYPE 4: 1 DATA TYPE 6: 9 DATA TYPE 8: 4 DATA TYPE 8: 4 JATA TYPE 8: 4 JATA TYPE 8: 4 NKILLCRITERIA, DESCRIPTIONS

LODP BACK FOR MEW TARGET END - LODP BACK FOR NEW WEAPON END - EXIT BACK TO MAIN ROUTINE

MICLEAR VILYGRABILITY DATA (UNIT 3)

* BLAST, 5 * 1+4, a 1+2, 4 DATA (AS ASQUIRED BY CODE) CODES: 1 = EMP, 2 = TRIE, 3 DATA: AS SPÉCIFIED AY NUDACC TARGET (ASSET), CIDE,

CYP: YU AND SIGNA TREE: T2, MU, AND SIGNA 9LAST: K, MU, AND SIGNA DPDER: AS WEEDEN, EMP, THEN TPEF, THEN BLAST

*** AUXILIAPY PROGRAM RCCFILE.4T73 YAINTAINS DATA BASE UNIT 4 (NUDACCDATA) MAKES FILE 3 IN PROPER FORMAT FOR RCC RUNS XQT 4TG3R3. INSTRUCTIONS APPEAR INTERACTIVELY

TOXIC DISSEMINATION DATA (UNIT 4)

(ONLY NEEDED IF WPN PRODUCES LIGUID CONTAMINATION) (ONLY NEEDED IF WPN PRODUCES VAPOR HAZARD NNXC CARDS, EACH CONTAINING: DUNNIND DISTANCE, - X-WND VIDTH, + X-WND VIDTH, CNTM APRIVAL TIME, CNTM EVAPORATION TIME *VAPOR*,NIV,NXV,NVV (NG. DF TIME, X, AND Y PTS.) (
TV(K), K=1,NTV (THE ARRAY OF TIME POINTS)
XV(K), K=1,NXV (THE ARRAY OF NUMNO POINTS)
YV(K), K=1,NYV (THE ARRAY OF NUMNO POINTS) WEAPON NAME ... CONTAMINATION', NNXC (ND. DF DOWNWIND PUINTS)

DOSAGES(T, X, Y) FUR ALL Y IN THE YV ARRAY .00P ON XV(J) END *** AUXILIARY PROGRAH PRETOX ***

INTERACTIVELY ASKS FOR INFORMATION:

AMOUNT OF CONTAMINATION:

PRIMARY OR SECONDARY VAPOR

Z—LEVEL (HEIGHT A "MICA" DOSAGES ARE TO BE EXTRACTED)

LETHAL DOSE FOR VORMALIZATION

MAKES TOXIC DATA FILE ON UNIT 4

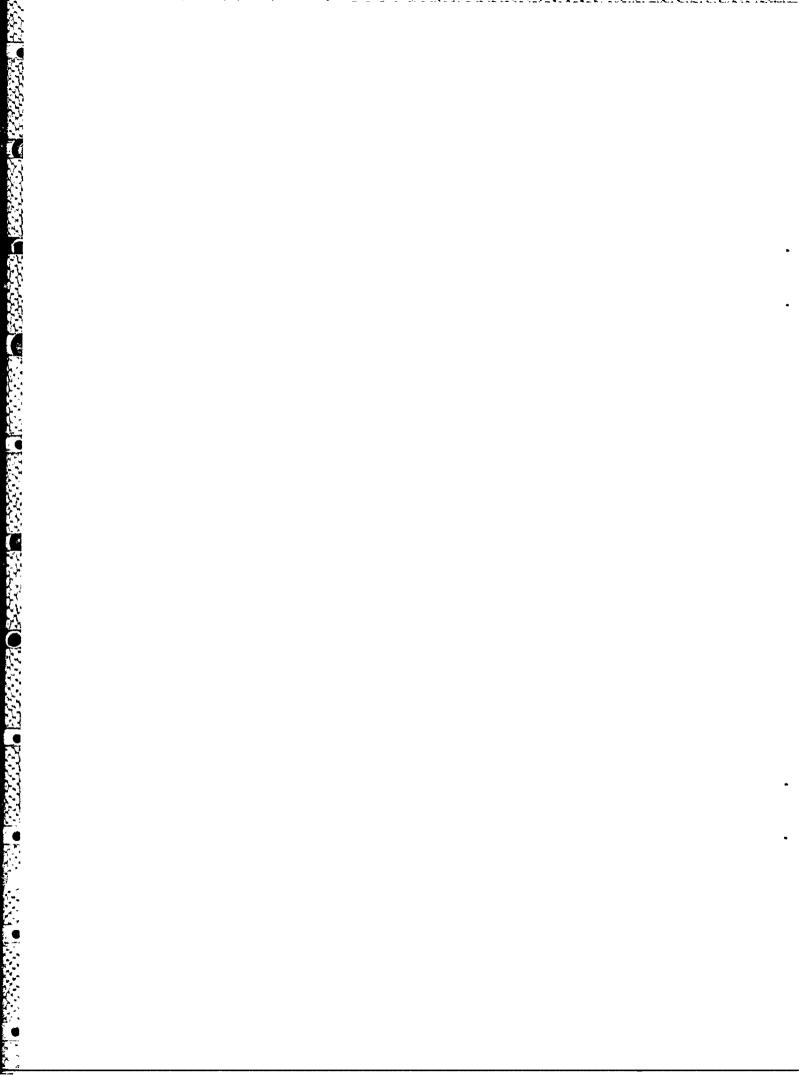
PEPEDPM44CE DEGRADATION DATA (UNIT 11)

18 CHARACTER DESCRIPTION, CODE NUMMER FOR THE DATA SET NUMBER OF DOSES (ND), AND THEIR VALJES NUMBER OF TIMES (NT), AND THEIR VALUES

FOR EACH DISE:
A SET OF NT DEGRADATION VALUES, COPRESPONDING TO THE SPECIFIED ELAPSED TIMES
(ND SUCH SETS FOR THE ND SPICIFIED DOSFS)
ONLY AT END OF TAPE 11 CNB

APPENDIX B

RUN #1 OUTPUT



THE TRANSPORT OF THE PROPERTY

2.325 ZZTIMERZS TIMER AT BEGINNING #

MNEMBAIC CONTROL CARDS

1. DEPLNY

DUMMY LINK CREATED *!*!* WARNING *!*!* COULD NOT FIND FG OF LINK NAMEP HANDLOAD

2. LINKS
FNCTNL GRP REPERTOIRE DJES NOT INCLUDE HANDLOAD
*** WARNING *** LINK HANDLOAD

*** WARNING *** LINK HANDLOAD

ORLINK CT* POU C4A INS #905 SUSCHA

HE AD IN

FNCOUNTER NUMBER

5999. 111	VOLLEY LENGTH
666	VJLLEY ANGLE
	2
3999•	062/1LE Y
2999,	×
1995.	NO. 2 NOS/ +/- RAM
START =	RECUPTIAE
SEEDS AT START =	JPER BNT CHAINS
TANDOM NUMBER	EVENT
3)))	7 4 6
	Ę

MISCELLANEDUS VALUES

EVENT TIME

>>>>>>> DOWN WIND FIKE JIRECTION (MEASUPED COW FROM THE TARGET X AXIS) IS 0.0 DEGREES <<<<<<

136.0

FRACTIONAL KILLS ARE ACCOUNTED DETERMINISTIC LETHALITY.

NAMES	TRUCK, TRK FKLFT	CKANE, TRK RADIO, TALKY			DRIVER, PERSONNEL	FKLFT OP, PERSONNEL CRANE OP, PERSONNEL	E
	35	1.00	200	1.03 1.03	9. 0. 0. 0.	38	1.50
EXPND QT							
GRNUL			., . 	 	, , , , , , , , , , , , , , , , , , ,	;;; ;;;;;	1.10
VRS IVL CVTBU PRSFC-4X/4N GRNUL	10,00/ 1000		7 · · · · · · · · · · · · · · · · · · ·				
04190							
IVL	77	11	77	O.C	ウェ	ĊO	O
	rd e-d	-1 -1	r A	٠. ٣-	4 2	o o	æ
ñ.	٦ ٧	m 4	ω φ	~ ∞	٠.	112	13

1 K(169]

:::

* * * *

88884

2 * * * *

63.5
•5.
F-3
1.30
1. 9.
TRANSMISSION FACTORS

SXXI								
.NK NAAE	£0.	INLNK	XAK	hAX EFF(Z)	KI KI	MIN EFF(7)	HAX. INLINK	ASSOCIATED LINK
1 HANDLBAN	J	-5.9C		65	1.00	0	UNLATO	NONE
2 001958	c			1(,	00.00	0	1. 30	TRUCK
44010	,	1.	33.4	77.7	7000	ø	UNLATO	NONE
101 4	٥	70	1.3.4	701	00.00	c	UNLATD	NONE
5 TRUCK		ن اح	1.34	ا وزيا	60.0		UNLATO	NON
A CRANE CP	12	٠,٠	1.63	100	00.0	מ	1.00	CRANE
7 216358	£ #	1.0	1.30	166	0.00	0	UNLATO	NONE
8 A/T NP	~	17.	400	150	37.7	7	1.00	NONE
P FKLFT	2	,;;·	1.00	77.5	\$5°C	,,,	UNLATO	HONE
TO AND THE PERSON OF THE PERSO	en.		٠ د د	101		o	UNLATO	NON
1 FKLFT JP	11	1.00	1.00	100	30.0	9	1.50	FKLFT
2 LOADASTR	8	1.00	1.60	100	00.0	75	2.00	NONE
S NOT IN LINK		, o						

KEY: SUBST. TIM=/SUBST. GFFECTIVENESS/SURST. TPDER-KEAD-IN

21	1 . HANDL 3	3. DRIVER . RADIO . TELE	RADIO	•	ËLE		RUCK	. TRUCK . CRANE		ER .	/T 0P	RIGGER . R/T DP . FKLFT . CRANE	••	RANE	FKLFT	,_
FUNCTIONAL 620UP			m	•	4	•	'n	•	•		ω	•	•	10	. 11	-4
1 TRUCK				 		٠	Ŧ				1 1 1 1 1					
2 FKLFT 3 CRANE	^ ^	-: 										c		T		
4 RA913	^ ^		T			~										
6 Tele	. ^				x										<u>.</u>	
7 0/1 39	1112	115/080/511				- -		•	1 1 5/.60/11 · H · 1	0/11	x	- -			1 5/.20/3	6/3
8 LAAD4STR	> >/1/1	1/11125/ 485/11						1 5/1.0	/31 5/.5	3/1150	1/0.1/				5/1.	0/2
9 D2IVEP	× 5/1.01/1	-· 1.		-•		-•			: 5/.5	0/1115	1.86/2		-•		1 5/02	3
7 P. T. O. T.	1/1.1/5 4	112/005/11		-					1 5/•6	2/1115	1.80/2				1 5/.2	6/3
11 FKLFT 3P	> 5/1.01/I	1/1112/085/11						115/.30	111 5/06	3/1115	1.83/2					
12 CARG 3P	1/0-1/6 4	17:17.1.85/11		٠.				J.	1 5/.6	0/1115	1.80/2		-		1107.90/1	7
13 9166ER	11.115 <	111791 165/11						1 5/.50	/21 н	=	7.80/2	- -			1 5/•2	0/3
	1 . LOADAS	•														
	٠. ٦	. NOTINK .														
FUNCTLINAL GROUP	1. 12	40													•	

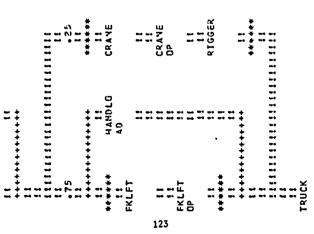
LNKFG

				•	*2 (.25)				
۸.	¥ *	ડ † ⊶l		CAPARTS	. +2	•	7 H A A A A A A A A A A A A A A A A A A	CHAÍNS	- T.C 44 I 20 F
LINKS 9	E ACH	м *	****** ******	•			2 .	, -1	R/T 32 +1 1LUADING T: TAUCK LUADMSTR
ХИВСНАТ 	LINKS II	+ + - 2		CPLNK	1L9ADIN		SEGMENT	SEG 1	40w4r
	AIN LINKS	IN LINKS IN EACH ORLINK HINKS LINKS	IN LINKS 10 01 11 EACH ORLINK +++++++++++++++++++++++++++++++++++	*1 9 11 6 11 6 11 6 11 6 11 6 11 6 11 6	LINKS P 11	*1	### ##################################	### ##################################	### ##################################

CONSIDERATION OF THE STATE OF T

R/T 132

!! !! ++++++++++ !! RADID TELE



11 11 LGADMS TR

DEPLUYMEAT ******** FG	7 ME 4	⊢ *	ž	XTAR	YTAR	KNEFOH	KCAT	KCAT HKCAT TKCAT	TKCAT	PSTR	RUCVR	40P
,		R/F OP	æ	3		1.00	-	М	2			3
۱ ۸		AADIO	·w	ے ہے۔ اور	,	, , , ,			l r-t	, -	·	· 3
m	v	A1 38 8	35	0.0	6.0	1.00	-	~	~	Н	1-1	7
•	٥	1111	4	700	•	1.5	~ 1	-	-	-	-	၁
ď	10	712	o,	3	1.0.3	2.05	-1	, -	н	-	-	-1
9		TRUCK	41	20.7	v. C.	٠ ډر	٦	-	٦	-	~ 1	ວ
~	3	DPIVEP	N	24.,	5.00	.ę.	-1	- 4	m	-4	н	9
80	Vi	FKLFT	0	20.0	56.0	1.00	러	-	-	-4	~	۰,
σ	4	FKLeT OP	rd id	د. • رح	5	1.10	-1	~	ന		~	0
10	Ð	1AND1 049	,- 1	24.0	5000	70.6-	-1	-1	4	-	H	0
=	Ŧ	LOADESTR	12	20.5	86.3	7.60	ત	m	47	-4	1	o
12	4	2112	Ŝ	۶۲ • ز ک	35.0	2.05	A	-	4			7
E (•	ALAPM	56	20.0	34.0	1.90	-	~	н	-	-1	()
14	(tr	CRAME	ñ	90	60.0	00،1		-1	~	-4	-	o
12	12	CRANE DP	٥	7.17	2.00	3.40	*1	-4	m	-	Н	0
16	-	TPUCK	.,	٠ در.	64.0	040	r-1	Н	Н	-	, -1	O
17	o	DRIVER	٧,	96.09	06.00	. 40	-1	.⊣	m	-	-	Ö
18	13	Algger	7	2.09	50.0	1.00	-	- 1	Ţ	1		ଦ
19	2	7 tu 7.	95	81.	ာ	2.00	H	4	;-1	1	-	H

TRANSPORTED TOO SERVE WAS ASSOCIATED TO SERVE THE SERVE TO SERVE THE SERVE T

THE TWO NAMES OF THE PROPERTY

20.0 FJR SOME SUBSTITUTION IIIIIIIII PARAING IIIIIIIIIIIIII
MAXIMUM RECONSTITUTIJN T149 = ... BUT SJ48 FG NEEDS
THEREFORE, SJHE SUBSTITUTIJNS AILL NEVER 3E 44DE
IIIIIIIIII KARNING IIIIIIIIIIIIII

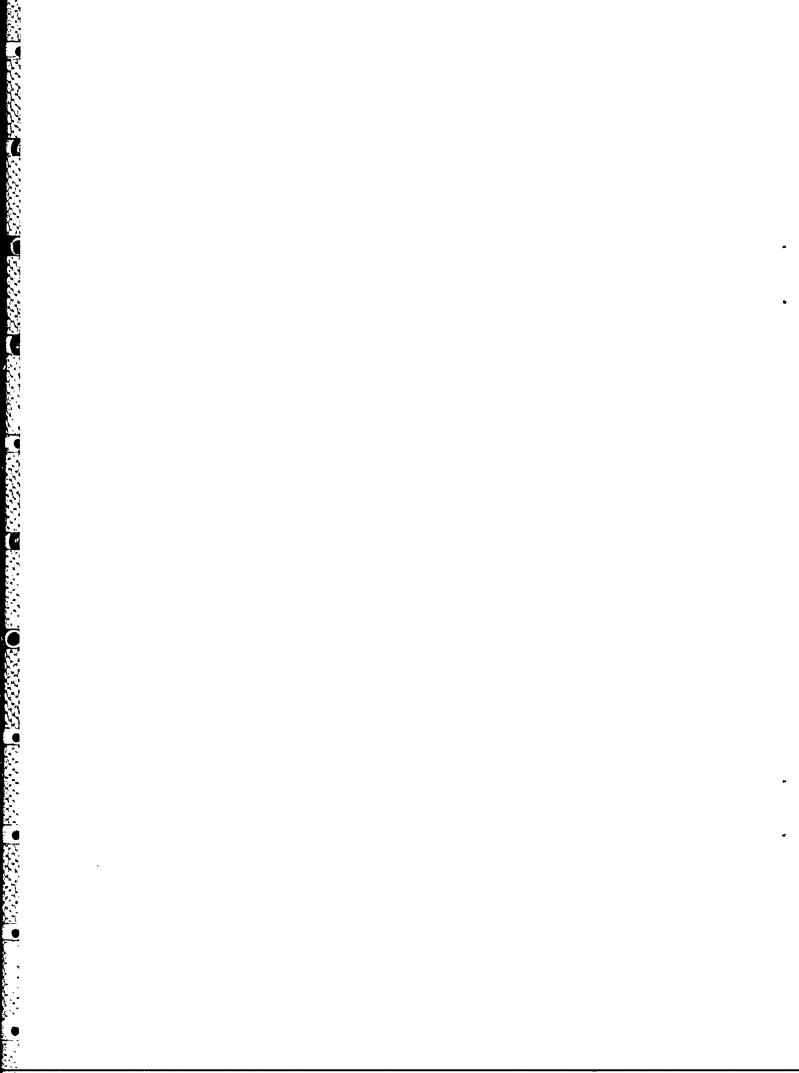
**** SUCCESSFULL INPUT DEBUG RUNI:: ****

*NEMBVIC CONTROL CARDS

1. STOP

STOP REAJ BY INPUT ROUTINE. NORMAL STOP TAKEN STOP CALLED FROM INPUT ADUTINE

APPENDIX C
RUN #2 OUTPUT



LAST U. SATED: < 10 JUN 83 > THIS IS AURA (ARMY UNIT RESILIENCY ANALYSIS)

THIS JOB WAS STARTED ON MONDAY
THE 29TH DAY OF AUGUST ANNO DOMINI 1983
AT 13 MINUTES BEFORE THE HOUR OF 9 O'CLOCK IN THE MORNING

2,331 ZITIMERIZ TIMER AT BEGINNING =

MNEMONIC CONTROL CARDS

1. DEPLOY

DUMNY LINK CREATED *!*!* WARNING *!*!* COULD NOT FIND FG OR LINK NAMED HANDLOAD

*** LINKS
FNCTNL GRP REPERTOTRE DDES NOT INCLUDE HANDLOAD

*** WARNING *** LINK HANDLOAD

*** UARNING *** LINK HANDLOAD

*** UARNING ***

*** UARNING ***

*** COMPOU

*** COMPOU

*** LINK HANDLOAD

*** LINK HANDLOAD

*** LINK HANDLOAD

*** COMPOU

*** CAMPOU

*** CAMP

- ASSUMING DUMMY LINK

ENCOUNTER NUMBER 1

SECOND EXAMPLE RUN - FAILURES

*	******	*********	* * * *	** ** * * * * * * * * * * * * * * * * *	**********	* * * * * *	*******					
	22	RANDOM NUMBER	SEEDS AT	START =	1999.	2999.	3999.	*666*	5999. 111			
>	TIA	VENT	ERAHAI	WPN TYPE/ RECUPTIME	NO.RNDS/ +/- RAM	×	062/TLE 7	Z ANGLE	VOLLEY LENGTH	JEVNT	F.	
:	•	•	•	•	•		•	•	• • • • • • • • • • • • • • • • • • • •			
•	c								*	•		
4 ^	5	INTITAL IISER RENST	-1 F-							3 0) t	a 5
1 (6						•		
0 <				00.01						> (
ru				300						> (NI 4
n 4	00.001			00.001						2 0		•
9 10	190.00			100.00)))		٠.
- α	040			240.00						•		4 -
•	340.03			300.00						•		
10	36000									000		
H	370.00			370.00								٠
12	420.00			420 00						0		
13	480.00			480.00						•		. ~
14	540.00									666		_
15	550.63			550.00						0		
16	600.00			00 • 009						o		٠.
	650.00			660.00						0		~
80 e-f	720.00									666		_
	730.00			730.00						0		
20	780.00			760.00						0		٠.
21	840.00			840.00						•		~
22	900.00									666		_
23	910.00			910,00						0		_
24	60-096			60.096						0		•
25	1020.00			1020.00						0		m
56	1080.03									666		_
27	1090.00			1090,00						0		_
28	1140.03			1140.00						0		٥.
29	1200.00			1200.00						0		æ
30	1260.03									666	٠	_
31	1270.00			1270.03				•		•		
35	1320,00			1320.00						0		•
m m	1380.00			1380,00						0		~
34	1443.60			1440.03						0		•
MISCE	MISCELLANEOUS	VALUES										

>>>>>>> INCOMING FIRE DIRECTION (MEASURED CCW FROM THE TARGET X AXIS) IS 0.0 DEGREES <<<<<<>>>>>>>> DOWN WIND DIRECTION (MEASURED CCW FROM THE TARGET X AXIS) IS 0.0 DEGREES <<<<<<<

180.0

120.0

60.09

10.0

NO. OF REPLICATIONS = 50
SIGNIFICANCE FOR SUBSTITUTION = .005
TIMES FOR INTERNAL RECONSTITUTION EVALUATION =

DETERMINISTIC LETHALITY. FRACTIONAL KILLS ARE ACCOUNTED

				ASSOCIATI K LINK	UN LATD UN LATD UN LATD UN LATD UN LATD UN LATD UN LATD UN LATD
	TRUCK, TRK FKLFT CRANE, TRK RADIO, TALKY ALARM, TALKY TELE, TALKY TELE, TALKY TELE, TALKY R/T OP, PERSONNEL LOADMSTR, PERSONNEL MEN, PERSONNEL MEN, PERSONNEL CRANE OP, PERSONNEL RIGGER, PERSONNEL	MOPP IV ****	00000	HIN EFF(3)	
٧.	TRK TATALL TATAL			X X	8888888888 88888888888888888888888888
NAMES	TRUCK, FKLFT CRANE, RADIO, ALARH, TELE, TELE, TOP, TELE, TOP, TOP, TOP, TOP, TOP, TOP, TOP, TOP	*	• Iñ	MAX EFF(Z)	000000000000000000000000000000000000000
	860000000000000000000000000000000000000	2 MOPP II **********************************	00		
F.		*		00 XNI	, "
EXPND R		MOPP 1	LI TE	0000 NU	
GRNUL	44444444444444444444444444444444444444	0# 0#00000 4#10000	000	20 W 5	111 112 122 132 132 132 132 132 132 132
	270000 100000 111111	N	E E	1080-000 1080-000 HD HG FG	
PRSFC-MX/MN	70000 70000 70000 70000 70000	**************************************	## ## # # #	78	
	* * * * * * ਜਜਜਜਜ	DEGRADATION BY MOPP AND DOS TOXIC KILL CKITERIA TOXIC TRANSMISSION FACTORS ************************************	TRANSMISSION FACTORS RELIABILITY-TYPE FALLURE ************************************		
CNTBU		88.7 KAITE # # SITE # # # # # # # # # # # # # # # # # # #	IN FAC	NA ME	
IVL	7777770000000	DEGRADATION 8'T HI TOXIC TRANSHISSTE ***********************************	RANSHISSION F ELIABILITY-TY **********************************	- W	0 > 1 = 0 × 0 = 2 = 0 1 = 0 × 0 = 0 + 0 + 0 0 × 0 + 0 + 0 + 0 + 0 0 × 0 + 0 + 0 + 0 + 0 0 × 0 + 0 + 0 + 0 + 0 + 0 0 × 0 + 0 + 0 + 0 + 0 + 0 + 0 0 × 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 +
VRS	- A4440HWYWWAA4	DEGRADATIO TOXIC TRALL TOXIC TRALL ***********************************	NSW TS	£ 85	HARD TRED TREE TREE TREE TREE TREE TREE TR
n .	901109876548011		** *** *******************************	LINKS 3	エエエ
		131			

95 NOT IN LINK

ord Transaction of the Control of th

LNKFG

KEY: SUBST. TIME/SUBST. EFFECTIVENESS/SUBST. DRDER-READ-IN

• • •	1	
FKLFT OP	5/.29/3 5/.20/3 5/.20/3 5/.20/3 10/.90/1	
CRANE 10	Ξ	
FKLF	Ŧ	
÷	111111111111111111111111111111111111111	
5 8	H 120/1-5/1 115/-80/2 115/-80/2 115/-80/2 115/-80/2	
• • •	200000000000000000000000000000000000000	
* RIGGER . R/T OP . FKLFT . CRANE *		
RANE 37	5/1.0/3:5 10/.80/1:5 5/.50/2:	
• • •		
TRUCK CRANE DP	I	
• • •		
TELE 4	I	
• • •		
DRIVER . RADIO . TELE	#	
• • • «		
DR IVEI	115/-85/11 115/-85/11 115/-85/11 115/-85/11 115/-85/11	
•••		
HANDLO	5/1.0/1115/.85/1! 5/1.0/1115/.85/1! 5/1.0/1115/.85/1! 5/1.0/1115/.85/1! 5/1.0/1115/.85/1! 5/1.0/1115/.85/1!	
•;;-		
ROUP		
رد	R CO P	
FUNCTIONAL GROUP	1 TRUCK 2 FKLFT 3 CRANE 4 RADIO 5 ALARM 6 TL OP 7 R/T OP 8 LOADMSTR 9 DRIVER 10 MEN 11 CRALFT OP 12 CRANE OP 13 RIGGER	

	•													
	NOLINK 95					I					x			
• •	•	-				••	-			-			-	
LOADHS	12	!							Ŧ					
• •	ر ز	^	٨	٨	٨	٨	٨	٨	٨	٨	٨	٨	٨	٨
	FUNCTIONAL GROUP			•					<u>ہ</u>			습	90	
	AL	×	<u></u>	ш	0	Ŧ		9	ADMST	Ē		F	щ	ER
	TION	TRUC	FKLFT	CRAN	RADI	ALARM	TELE	R/T	LOAC	DRIV	HEN.	FKLF	CRAN	RIGG
	FUNC	-	~	m	4	ı,	•	7	α÷	0	9	검	12	
133		•												

LINKS IN EACH SUBCHAIN **********

SUBCHAIN LINKS

LINKS IN EACH ORLINK

DRLINK LIMKS

		CPLNK . CPPARTS	*2 (*25)
		CPPARTS	+2 (•75)
44		٠	ue .
*3 *3	LINKS *****		ILDADING TECHNIQUE
+14+	COMPOUND LINKS	CPLNK	ILDADING

SEGMENTS IN EACH CHAIN

SEG \ 1

1 * R/T OP

2 * +1

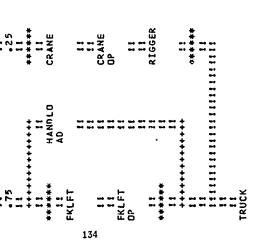
3 * !LGADING TECHNIQUE

4 * TRUCK

5 * LGADMSTR







	J.		LNK	XTAR	YTAR	HOWMNY	KCAT	NKCAT TKCAT	TKCAT	PETR	NUCVR	MOPP	
							•	•	•	•	•	:	
m	۲	R/T 0P	89	0.0	3.0	1.60	7	-	~	-	-	c	
~	4	RADIO	m	0	0	900		۰,	۰,	•	-، ۱	· c	
m	ĸ	ALARM	95	0.0	0.0	1.00	-		- ۱	۰,	• ~	· c	
4	9	TELE	4	3	3	1.00	٠,	•	•	•	4	•	
Ś	10	AEN	95	0.0	1.6	2.00	-	-	۰-	- ۱	• -	, -	
ø	H	TRUCK	'n	20.0	50.0	99.	-	·	۱,-	- ۱	1 ~	4 C	
۲	0	DRIVER	7	20.0	50.0	9.	, , ,	٠.	i eri	۰-	÷ (-	, 3	
œ	~	FKLFT	o	20.0	50.0	1.00		-) #4	-، ا	÷	.	
0	11	FKLFT OP	11	20.0	50.0	1.00		ı	m	•	•	•	
07	0	HANDLOAD	н	20.0	50.0	-5.00	-	-	4	۰-	۰,	, c	
11	80	LOADMSTR	12	20.0	80.0	1.00	-	۰,	. r.	۱	۰.	• •	
12	10	MEN	95	20.0	30.0	2.60	-	-	-	, –	- ۱	• -	
13	ß	ALARH	95	20.0	80.0	1.66		-	۱ ۳۰	۰	ا	• 0	
14	m	CRANE	10	0.09	0.09	1.00	-	۱ –	۰,	۰,	۰-	• •	
15	12	CRANE DP	9	09	0.09	1.00	· ~	-	1 647	-			
16	-1	TRUCK	'n	60.09	60.0	- 40	٠ -	-	,,,	۰	۰,	0	
17	٥	DPIVER	7	0.09	60.0	9	-	-	1 (1	- ۱	- ۱	• •	
18	13	RIGGER	~	000	0.09	1.00			•	-	• •-	• 0	
19	10	MEN	95	80.0	0.0	2.00	· ~	, _F	٠,	۰,	•	-	
									i	ı	l	ı	

	118.	
DOWN WIND FROM YY TO 22	• 46 V	
INITIAL INCOMING DIRECTION FROM AA TO 88	70°	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
2. INITIAL INCO	*95 A	000 11 11 11 11 11 11 11 11 11 11 11 11
Y (ACRDSS) INTERVAL = X INTERVAL =	22• V	
	-5- - ^	00 00 00 00 00 00 00 00 00 00 00 00 00
DEPLOYMENT *******	•	**************************************

CHARLE DESCRIPTION PROGRAM DESCRIPTION OF THE RESERVE OF THE PROGRAMMENT OF THE PROGRAMME

**** REPEAT OF WARNINGS FROM THIS RUN ****

DUMMY LINK CREATED - ASSUMING DUMMY LINK *!*!* WARNING *!*!* COULD NOT FIND FG OR LINK NAMED HANDLOAD
*** WARNING *** LINK HANDLOAD HAS NO CORRESPONDING FG

**	***	***	***	糖糖 的复数使用 计电子 医乳球 医甲状腺素 医甲状腺素 医甲状腺素 医甲状腺素 医甲状腺素 计多数数据	***		***	***	*****	***	****	***	***	***	******	***	详细和表表的证明的证明的证明的证明的证明的证明的证明的证明的证明的证明的证明的证明的证明的
* *	EFFECTIVENESS VS. TIME	VENESS ******	VS. ****	TIME ***													
•	TINE	EFFE	EFFECTIVENESS	ENESS	100	66 -0 6	80-89	62-32	69-09	50-59	69-04	30-39	20-29	10-19	1-9	0	
-	00.00	1.05		0000	50	0	0	0	0	0	0	0	0	0	0	6	
	10.00	1.00	1/+	.035	40	0	0	•-	0	0	ပ	0	0	ۍ	٠	•	•
	60.00	• 98	-/+	.039	24	0	0	m	0	3	0	0	3	•	0	٥	
- •	120.00	96•		.015	44	0	o	ĸ	0	0	-	0	0	ပ	0	0	
. •	190.00	• 93	-/+	.018	37	0	0	12	٥	0	н	ပ	0	0	0	•	
	240.06	. 90	+	•319	32	0	0	17	٥	0	7	0	o	Ç	0	o	
••	300.00	• 89	-/+	.121	31	o	၁	17	0	0	7	0	0	0	၁	0	
. •	370.00	. 85	-/+	•324	26	٥	ر.	19	0	a	'n	0	?	o	٥	0	
•	420.30	. 85	-/+	•324	25	0	IJ	20	٥	0	ľ	0	0	0	0	0	
•	480.00	• 84	+/+	• 254	23	٥	œ	22	Ö	د.	'n	0	0	၁	۵	0	
. •	550.00	• 82	-/+	. 025	21	0	ņ	23	3	၁	9	0	0	0	0	0	
-	900.009	. • 81	-/+	•024	19	O	3	52	0	0	9	0	o	O	0	0	
•	660.00	.79		.025	18	0	၁	54	0	0	ω	Э	٥	ပ	۵	0	
-	730.30	.77	-/+	.025	12	٥	t	56	٥	٥	٥	0	0	0	٥	0	
	780.00	• 76	-/+	• 326	14	၁	ပ	25	ø	ఆ	11	0	٥	ن	0	0	
-	840.00	• 75	-/+	•025	12	0	0	27	0	0	11	0	3	٥	ပ	0	
-	910.00	• 72			ဆ	>	0	30	0	0	12	•	0	0	0	0	
-	960.33	.71	-/+	.323	^	Ģ	၁	30	٥	0	13	٥	0	0	0	٥	•
Ã	1020.30	7.	+/+	• 323	2	0	0	30	0	0	13	0	0	•	ပ	0	•
Ä	1090.00	۲.	-/+	•323	-	0	o	56	٥	ი	14	0	0	0	0	0	
7	1140.00	.73	-/+		~	0	0	28	0	0	15	0	٥	0	9	0	
ri	1200.00	9.40	-/+		~	0	•	28	0	0	15	0	9	3	0	0	
H	1273.00	٠ 70	-/+		۲	0	J	27	9	0	16	0	0	ü	9	•	
-	1320.30	• 69	-/+	•023	w	0	0	27	0	0	17	0	0	9	0	0	
4	1380.03	. 67	-/+	•3.23	K)	Ö	'n	26	0	0	19	0	0	0	0	0	
~	1440.00	.67	+	• 0 22	4	•	9	27	0	0	16	•	•	0	0	•	

FUNCTIONAL GROUP SURVIVERS — INCLUDING CONTAMINATED — VS. TIME FOR REPLICATION D

FKLFT CRANE RIGGER. .R/T OP-LOADHS.DRIVER.MEN *TRUCK .FKLFT .CRANE .RADIO .ALARH .TELE

• 61		00.1	90.1	1.00	00.	00.		000	00	00.1	00:1	98	36	1.00	00:1	00.1	86	90			00	00.1	1.30			,																					
12 •	9	00.	3		9	9	36	3	3	00	2	88	35		3	8														.OADMS.	•	12 .		20	. 0	0	o o	Ċ	20	•	0	. .	ç	00	• •	00	,
-	1.00	1.00	1.00	1.00	1,00	1.00	90	q	3	80.	3	8	36	8	60	8	00.1	96		1.00	1.00	1.00	1.00							FKLFT .L	•	::		? a	• •	0	00	ç	ن کر د. کر	0	0	00	9	:00	o 0	00	•
10	9.00	6,00	00.9	000.9	9	000	900	9	9.00	9.00	00.9	9	9 6	00.0	6.00	9.00	0.0		200	9	00.9	6.00	00.9							RANE .	•	10		2	•	0	0 0	9	<u> </u>	0	ž,	. 0	4	0	,	0 3	•
•	1.60	1.00	1.00	1.00	1.00) ()		00	1.00	1.00	1.00	900		1.00	7.00	٥٥٠	000	0.0		100	1.00	1.00	1.00				LINEI			*FKLFT .C	•	••	50	2 9	•	0	0 o	ć	ļ o	0	۰ ۵	0 0	07	0	• •	00	•
• w	1.00	1.00	1.00	1.00	1.00	99		1.00	1.00	1.00	1.60	9.0		1.00	1,90	1.00	90	1		1.00	1.60	1.00	1.00			;	X NTED IN	}		/T 0P	•	ω	50	, a	•	0	ပ၁	ď	၃ မ	0	0 (9	S.	0	• •	0 4	•
7	8	•	•	•	•	•	• •	•	•	•	•	36	• •		•	•	8	•	• •	• •	3.	1.60	1.00			CP LNK	IN LI		*****	RI GGER.R	•	~		? 0	0	0	ල ය	9	ř	0	۰.	00	87	0	, 3	0 U	,
•	8	1.00	2.00	1.30	3;	3 5		8	00	1.00	8	88	38	1.00	3.0	30.1	28	3 6		8	1.66	¥.00	8		1	OT IN AVAIL	ALLONED THUS N	REPAIR)	******	CRANE .		•	30	ç. 7	0	6	90	07	; 0	4	۰ ،	30	8.7	90	9	0 3	,
٠.	2.00	2.00	2.30	2.00	200	9 0	200,2	2.00	2.00	2.00	2.00	2.00	200	2.00	2.00	2.00	00°2	200	200	2.00	2.00	2.00	2.00	•		CL. * O IF SE ASSETS (ġ ¥	Z .			•	'n		? ?	0	0	00	č	, 0	0	۰.	5 0	50	0	10	o 0	,
	1.00	٠	•	•	•	•	• •		•		•	•	• •		•	•	•	•		•	•	•	•	ICATION	i	ECAUSE /		USES C	ij	.TELE ,	•	•		.	0	0	00	c) O	0	9	90	c	000	6	. 0	,
m	1.00	.98	96.	96.	06.	•	78	• 76	**	• 70	.68	000	2 4	09	.58	.58	80.4	929		.56	•34	50	. 40	R REPL		WEAK B	* O IN	THITTIN	*****	RADIO	•	m	5	\ ?	0	0	0 9	Ç	, <	0	c :	3 0	20	300	9	o n	
2	1.00	1.00	96.	06.	28.	2.0	4	. 54	• 52	09	30.5	, ,	4	. 62	134	ČŘ.	0 0	9 6	282	92	*2	• 22	•25	TINE FO		F ACTUAL	HI H	AS-AV	, *	• DRIVER,	•	N		0	a	0 (0 0	c	, 0	0	o 4	90	c	•	• •	0 0	ı
•	1.00	1.00	1.30	7.00	000		1.00	1.00	1.00	1.00	1.00	7	000	1.00	1.00	1.00	000		00-1	1.00	1.00	1.00	1.60	TS VS.			• •	# Z	*****	ANDLO	. AD	H			3	Э·	• •	e	, 0	0	0		_	,	6	o o	
TIME	0.00	10.00	00,09	120.00	190.00	00.00	370,00	420.00	480.00	550.00	00.009	2000000	780.03	840.00	910.00	00.096	1020-00	1140.00	1200.00	1270.00	1320.00	1380,00	1449.00	LINK RESUL		KEY: LINES	ы ш	шц	. 4	•	•	TIME	00.0		•	•	- •	10,00) } }	•	•	•	60.09		•	•	

00000	600000	00000	00000	00000	00000	00000	999009	00000	20
, , , , ,	400000	@0000	90000	%00000	N00000	400000	00000	6,00000	27
#00 N 00	, 00 mon	#00 <u></u>	#00 <u></u>	300011000	38 0 0 0 12 4 4	# 0 0 ° 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	33
, , , , ,	100000	m 0 0 0 0 0	%00000	N00000	200000	H 00000	00000	0,0000	27
00000	200000	00000	00000	00000	000000	00000	00000	600000	90
*00000	" 00000	m 00000	400000	6.0000 W	\$ 0 0 0 0 0	F 0000	က္ဝဓမ္မာ	400000	33
* * * * * * *	က္ခတ္တက္က	" 00000	#0000	820000	200000	¥00000	က္ရဝ၈၁ဝဝ	460000	33
60000	00000	00000	00000	000000	000000	00000	00000	00000	30
000000	000300	00000	030000	300000	000000	090000	070000	200000	0
000000	000000	00000	00000	800000	00000	00000	000000	02000	20
00000	000000	000000	000000	200000	000000	000000	000000	000000	၁
<i>~~</i> ,	, , , , , , , ,	27 00000	77 0000 0000	8118	188	13 13 00 00 00	020000	2174	23
									•
120.00	199.00	240.00	300.00	370.00	420.00	480.00	550 . 00	c0°009	660.00

33009	000000	00000	00000	200000	000000	00000	000000	000000	0°0
00000	500000	%03000	706000	700000	20000	n00000	,000ão	400000	11 0
00,4	31 00 00 00 00 00 00	31 0 19 0	00000	20 00 00 00 00 00 00 00 00 00 00 00 00 0	20 00 00 00 00 00 00 00 00 00 00 00 00 0	2000	\$000 5000 5000	\$2 00 00 00 00 00 00 00 00	80 O
00000	N 0 0 0 0 0	N00000	700000	۲۰0000 ۲	20000	No 0000	H00000	403000	7,0
00000	00000	00000	000000	00000	003383	000000	00000	00000	90
00000	W 00000	#00003	00000	5 30000	0 0 0 0 0	0,00000	800000 N	ღ 6 3 3 6 6	58 0
00000	40000	H30090	00000	00000	50000	0,00000	∞ 600 00	800000 N	28
00000	ଜୁବତ୍ତ୍ରତ	020000	00000	o o o n o o	00000	00000	30000	000000	50
09000	000000	000300	000000	00000	20000	090000	200000	000000	06
66960	00000	00000	00000	000000	800000	00000	00000	၀၀၀၀၀	000
20000	000000	000000	00000	00000	030000	000000	300000	000000	00
% \$0000	20000 20000	\$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	**************************************	88 0000 V.	32 0000	## 0 c 0 v	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	36<<
• • • • •	• • • • • •	• • • • • •	• • • • • •	•••••	• • • • • •	•••••	• • • • • •	•••••	• •
	730.00	760.00	840.00	5	960.00	050.00	ov•060	40°C	9
	730	760	840	910.50	960	020	060	140	1200.00
				141		~	H	H	=

0000	00000	00000	00000	N 00000
2000	ლიაიი თ	200000	1 00000	100000
22.00	28 00 00 00 00 00	22 23 20 00 00	22 22 20 20 20 20 20 20 20 20 20 20 20 2	40000 0000
0000	mooooo	00000	100000	1100000
0000	000000	329000	00000	000000
မမမ	800000	20000	£22200	7 a o o a o
9900	800000	700000	00000	40000
0000	000000	60000	000000	00000
0000	000000	00000	000000	333000
0000	000000	00000	000000	00000
0000	000000	020000	000000	00000
0000	84 00 00 00 00	88000cc	00000 00000	00000 00000
• • • •	• • • • • •	• • • • •	• • • • • •	• • • • •
•	1270.00	1320.00	1380.00	1440.00

COMPOUND LINK PARTS VS. TIME

AVERAGE EFFECTIVENESS USED, OVER ALL REPLICATIONS (NOTE: IF CPL NOT WEAK, MORE CAPABILITY MAY HAVE BEEN AVAILABLE THAN WAS USED)

120.00 120.00 120.00 120.00 120.00 120.00 120.00 120.00 120.00 120.00 120.00 120.00 110.00 110.00 110.00 110.00 110.00 120.00 11

		1440.00 .73 .48
 50.00 40.00	. 50	• •
.73	.73	.73
1270.00	1380.00	1440.00

pooli vasasaaliktoogogi kaitovasi koosekse kosekaat kaarassa kaatoosi koosekse kasaataan kaasaa. K

SEGMENT RESULTS: CUMULATIVE TIMES WEAKEST VS. TIME

• • •	:																									
		0	0	0	•	0	0	0	0	9	0	0	0	0	ó	0	0	0	0	0	0	9	0	0	0	0
	:																									
=1.2		u	0	6	6)	u	0	U	0	E 3	D		5 3	63		123	O	c)	E.	0	0		U	0	6	0
				_				•			•			•	•	_		-	_	•	•		•		_	
• • •	:																									
๚๓๚	6	~ 4	m	•	13	18	19	24	25	27	8	31	32	35	36	38	45	43	43	43	43	43	43	44	45	46
• • •	:																									
424		0	0	0	0	0	9	٥	0	c	0	0	0	0	0	a	0	0	c	0	0	c	0	c	ō	0
+	:																									
• • •	:																									
	•	0	0	C	0	0	0	0	0	0	0	0	O	0	0	C	0	0	0	0	0	0	0	0	C	0
# # UI	<u>:</u>																									
Z	:	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
HAIN	00.0	10.00	69.00	120.03	190.00	240•00	300.69	370.00	420.00	480.00	550.00	600.00	99.099	730.00	780.00	840.00	910.00	960.00	1020.09	1,90.00	1140,00	200.00	270.00	• 00	380.00	14 49 • 00
CHA SEGNE TIME \		10	3	120	190	240	300	370	450	480	550	909	999	730	780	840	916	960	020	96	140	200	270	320	380	4.41
Ħ	:																		-1	-	-	+	H	H	-	
										143																

00 1.00 50 (1.00)	1.00	908
0000	10.00	00.09

0	96.	50	
-			•
•	•	٠	
	120.00		

.96	.93	500
_		_
•	•	•
	190.00	

500		98
	-	
• •	•	• •
240.00		300.00

	ب ء	, W &
370,00	•	8 10 0

200	80
•	
	420.00

ώ (V, 10)	\$ 2
_	
• • •	• •
429-00	480.00

.84	20	• 8 4	•
		_	
•	•	•	
480.00			

77 00.0E7 56 . (77.) .	780.00 · .76 56 · 56 (.76)	840.00 · .75 50 50 · .	910.00 • .72 • 50 • (.72)	960.00 • .71 50 • 50	1020.0071	1355.5071 . 50 . (.71)	1140.0075	1200.00	1270.00 · :70 50 • 50	1320.0069 50 69)	1380.00 • .67 50 • 50 • .67)	1440.0067 50 67)

RELIABILITY-TYPE FAILURES

DEADFAIL	140
MED.FAIL DEADFAIL	080
LITEFAIL	2 FKLFT .560 .680 .140 3 CRANE .400 .680 .040
FG D	2 FKLFT 3 CRANE

END-OF-ENCOUNTER SUMMARY

					*6665
0.00	2 & C	0.00	00.00	00.0	2999. 972717334.
0.0	š. 3.	00.0	0000	0.00	
0.00	000	00.0	0.00	000	1999.
1.00	27.	1.00	2.00	1.00	END .
00.1	1.00	1.00	2.00	1.03	SEEOS AT
	• •	•	•	•	UMBER
					(((RANDOM NUMBER SEEDS AT END .
TRUCK	CRANE	RADIO	ALARM	TELE	Ξ
r-1 (u m	4	SO.	•	
	1 TRUCK 1.00 0.00 0.00 0.00	1 TRUCK 1.00 1.00 0.00 0.00 0.00 2.00 2 FKLFT 1.00 2.2 0.00 .56 0.08 3 CRANE 1.00 .48 0.00 .40 .08	1 TRUCK 1.00 1.00 0.00 0.00 0.00 2.00 2 FKLFT 1.00 2.2 0.00 .56 0.08 3 CRANE 1.00 48 0.00 6.00 6.00 6.00	1 TRUCK . 1.00 1.00 0.00 0.00 0.00 2.00 2 FKLFT . 1.00 2.2 0.00 .56 .08 3 CRANE . 1.00 48 0.00 .00 0.00 0.00 0.00 5 ALARM . 2.00 2.00 0.00 0.00 0.00	1 TRUCK 1.00 1.00 0.00 0.00 0.00 0.00 2.00 2.00

5999. 111

*** COMPUTER TIME FOR ENCOUNTER ... 46.481 SECONDS

MNEMONIC CONTROL CARDS

1. STOP

146

STOP READ BY INPUT ROUTINE. NORMAL STOP TAKEN STOP CALLED FROM INPUT ROUTINE

APPENDIX D RUN #3 OUTPUT

THIS IS AURA (ARMY UNIT RESILIENCY ANALYSIS , - LAST UPDATED: < 6 JUL 84

THIS JOB WAS STARTED ON THURSDAY
THE 12TH DAY DF JULY ANNO DOWINI 1984
AT 4 O'CLOCK IN THE AFTERNORY

ZZTIMERZZ TIMER. CPUTI4=BEGINNING = 2.089

MNEMONIC CONTROL CAPOS

1. DEPLAY

DUMMY LINK CREATED CAN NOT FIND ASSET OR LINK NAMED HANDLOAD #1+14 WARNING #1+1#

DUMNY LINK CREATED CAN NOT FIND ASSET OR LINK NAMED REPAIR *! *! # WARNING *! *! *

HAS NO CORRESPONDINGLY NAMED ASSET - ASSUMING DUMMY LINK *** WARNING *** LINK HANDLOAD

HAS NO CORRESPONDINGLY NAMED ASSET - ASSUMING DUMNY LINK *** WARNING *** LINK REPAIR

*** WARNING *** LINK R 3. SUBCHA 4. ORLINK

5. CHAINS
7. HEADIN
8. FAILUR

10. RECONS 11. REPLIC 12. EXPEND 13. REPAIR

	Sal			********************
	D REPA			* * *
	FS AN		50.	* *
	FAILTR	EPAIPS	15.59.	***
~1	۱ ~	۵ ا ت	784	***
NUMBER	(RUN3	IPLE PUB	07/12	****
ENCOUNTER NUMBER 1	THIRD RUN (RUN3) - FAILURES AND REPAIRS	THIRD EXAMPLE RUN - REPAIPS	RUN ID # 07/12/84 15.53.50.	*******
ш	-	-	œ	*

		• 00~0%040%040%040%040%040%%	
	JEVNT	000000000000000000000000000000000000000	
5999. 111	VOLLEY LENGTH		
4999.	VOLLEY ANGLE	0 0.0 DEGREES <<<<<<	>>>>>>
	7		S E
3999.	062/TLE Y	130.	S 0.0 DEG
2999•	×	60.0 120.0 RGET X AXIS	TARGET X AXIS) I
1999.	NO.RNDS/ +/- RAM		
START =	₽ ₩ •	100 600 600 1200 1200 1200 3000 3000 3000 3000 4800 6600 6600 6600 6600 6600 6600 1000 1000 11400 11400 11400 11400 11400	RED CC4 FRON 146
SEFOS AT	VH.	* t !	ON (MEASU
RAMINDM NUYBER	typi	1 0.00 USER RCNST 1 2 0.00 USER RCNST 1 3 10.60 PCNSTITUTE 1 4 60.00 PCNSTITUTE 1 5 120.00 PCNSTITUTE 1 6 180.00 PCNSTITUTE 1 1 190.00 PCNSTITUTE 1 1 340.00 PCNSTITUTE 1 1 340.00 PCNSTITUTE 1 1 340.00 PCNSTITUTE 1 1 480.00 PCNSTITUTE 1 1 480.00 PCNSTITUTE 1 1 550.00 PCNSTITUTE 1 1 550.00 PCNSTITUTE 1 1 560.00 PCNSTITUTE 1 1 660.00 PCNSTITUTE 1 1 660.	WIND DIRECTI
2 2 2 2	1146	1 0.00 USER 3 10.60 USER 4 60.00 PCNST 5 120.00 PCNST 6 180.00 PCNST 8 240.00 PCNST 10 360.00 PCNST 11 370.00 PCNST 12 420.00 PCNST 13 540.00 PCNST 14 540.00 PCNST 15 550.00 PCNST 16 660.00 PCNST 17 660.00 PCNST 18 730.00 PCNST 19 730.00 PCNST 10 360.00 PCNST 11 760.00 PCNST 12 420.00 PCNST 13 100.00 PCNST 14 560.00 PCNST 15 560.00 PCNST 16 600.00 PCNST 17 100.00 PCNST 18 140.00 PCNST 20 120.00 PCNST 21 120.00 PCNST 22 100.00 PCNST 23 120.00 PCNST 24 1440.00 PCNST 25 100.00 PCNST 26 100.00 PCNST 27 100.00 PCNST 28 120.00 PCNST 29 120.00 PCNST 21 120.00 PCNST 22 120.00 PCNST 23 130.00 PCNST 24 1440.00 PCNST 25 100.00 PCNST 26 120.00 PCNST 27 100.00 PCNST 28 120.00 PCNST 29 120.00 PCNST 20 120.00 PCNST 21 1440.00 PCNST 22 120.00 PCNST 23 1320.00 PCNST 24 1440.00 PCNST 26 100.00 PCNST 27 100.00 PCNST 28 120.00 PCNST 28 120.00 PCNST 29 120.00 PCNST 20 120.00 PCNST 20 120.00 PCNST 21 140.00 PCNST 22 140.00 PCNST 23 1320.00 PCNST 24 1440.00 PCNST 25 10.00 PCNST 26 10.00 PCNST 27 10.00 PCNST 28 1140.00 PCNST 28 1140.00 PCNST 29 120.00 PCNST 20 120.00 PCNST 20 120.00 PCNST 20 120.00 PCNST 20 120.00 PCNST 20 120.00 PCNST 20 120.00 PCNST 21 140.00 PCNST 22 10.00 PCNST 24 140.00 PCNST 26 10.00 PCNST 27 10.00 PCNST 28 120.00 PCNST 28 120.00 PCNST 29 120.00 PCNST 20 120.00 PCNST	
	EVENT	100 25 25 25 25 25 25 25 25 25 25 25 25 25	******

DETERMINISTIC LETHALITY. FRACTIONAL KILLS ARE ACCOUNTED

					SET SET
		REPAIR LINK			ASSOCIATED LINK
		OCATION	10.000 10.000 10.000 10.000		MAX INLINK
TRK TALKY TALKY TALKY ALKY ALKY ALKY ALKY SPESONNEL PERSONNEL PERSONNEL PY PERSONNEL	MADP IV ************************************	: -	•		EFF(%)
NAMES TRUCK, TRK FKLFT CRANE, TRK RADIJ, TALKY ALRM, TALKY TELE, TALKY R/T OP, PERSONNEL LOADMSTR, PERSONNEL DRIVER, PERSONNEL MEN, PERSONNEL FKLFT OP, PERSONNEL FKLFT OP, PERSONNEL FKLFT OP, PERSONNEL	**************************************	.50 STD.DEV.			4AX HIN EFF(%) IN
	100.00 100.00 HUPP II **********************************		0000	**************************************	MAX HAN IN EFF
2 C C C C C C C C C C C C C C C C C C C	CRITERIA CRITERIA 1 NOPP I ***** **** **** ****	: S	1.000 1.000 1.000	800 800 800	INLNK -5.00
O ·	.00 1.00 T MDPP (00 1.00)	A H	コミード	MTBTF 720.000 1060.000	HJMF ID 0
P & S F C	HQPP AND TOXIC SIGN FACTORS F************************************	0 A T A ***	FAILURE***		
	-11 -12 -13 -14 -15 -15 -16 -17 -17 -17 -17 -17 -17 -17 -17 -17 -17		FKLFT FKLFT CRANE CRANE LLITY-TYP	FKLFT CRANG	NAYF
. HVW4046648	151 DESPAND DE	TRANSHISSI REPAIRABLE ********	# ###	10 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	L

o	• •				0	0	• •	•		o	• •	< FXPENDIBLE >	,
BNGN	TRUCK	NONE	NON	NO.	CRANE	NON	NONE	NON	NONE	FKLFT	NONE	H.C.	
UNLATO	1.00	UNLATO	UNLATO	UNLATO	1.00	UNLATO	1.00	UNLATO	UNLATO	1.00	2.00	UNLATO	!
0	0	0	0	0	٥	0	0	0	0	0	75	0	
00.00	00.00	00.00	00.00	00.0	00.00	00.0	00.00	00.00	00.00	00.0	00.00	00.00	
100	100	100	100	100	100	100	100	100	100	100	100	100	
2.00	1.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
-2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100.00	8.09
0	3	4	9	-1	12	13	7	~	ო	11	en	77	
REPAIR	8 ORIVER	RADIO) TELE	T PUCK	CRANE OP	RIGGFP	9 P/T 00) FKLFT	CRANE	FKLFT NP	I LOADMSTR	PARTS	NOT IN LINK
2	ო	4	S	9	7	æ	œ	07	11	12	13	14	95

LNKFG

KEY: SUBST. TIME/SUBST. EFFECTIVENESS/SUBST. IRDER-RFAD-IN

. FKLFT . OP . 12	5/.20/3! 5/.20/3! 5/.20/3! 5/.20/3! 10/.90/1!	
CRANE		•
FKLFT 10	<u> </u>	
R/T OP •	5/.60/11 5/.60/11 5/.60/115/.80/21 5/.60/1115/.80/21 5/.60/1115/.80/21 5/.60/1115/.80/21 5/.60/1115/.80/21	
RIGGER .	5/.60/11 5/.60/11 5/.60/11 5/.60/11 5/.60/11	•
CRANE .	5/1.0/3 10/.80/1 H 5/.50/2	
TRUCK	I	
TELE 5	±	
RADIO .	<u> </u>	
DRIVER .	15/.85/1 15/.85/1 15/.85/1 15/.85/1 15/.85/1 15/.85/1	40LINK 95 H
REPAIP .	1.0/1	H 44 TS
HANDLO . AD .	5/1.0/11 5/1.0/11 5/1.0/11 5/1.0/11 5/1.0/11 5/1.0/1110/ 5/1.0/1110/	LOADWS .
ASSET	1 TRUCK 2 FKLFT 3 CRANE 4 RADI) 5 ALAR4 6 TELE 7 R/T JP 8 LOADISTR 9 DRIVER 10 MEN 11 FKLFT QP 12 CRANE QP 13 RIGGER	ASSET 1 TRUCK 2 FKLFT 3 CRANE 4 RAD III 5 ALARY 6 TELE 7 R/T JP 8 LOADHSTR 9 DRIVER 11 FKLFT OP 12 CRANE 13 RIGGER 14 PARTS

SEGMENTS IN EACH CHAIN

C + A I C -

1 . R/T DP 2 . +1 3 . !LUADIMG TEC-HIQUE 4 . TRUCK 5 . LOADMSTP

:: : ± 3 & 6 154

R/T 3P

CRANE OP ANE OP III ##### CRANE

	* * * * * * * * * * * * * * * * * * * *										
7	LU ASSET	LNK	XTAR	YTAR	HOWNNY	KCAT	NKCAT	NKCAT TKCAT	PSTR	PSTR NUCVR	MOPP
	7 R/T NP	٥	0.0	0.0	1.00	-	-	2	H	-	0
~	4 RADIO	4	0.0	0.0	1.00	-	-	-	-		0
m	5 ALARM	46	0.0	0.0	1.00	-	-	-	-	-	0
4	6 TELE	·	0.0	0.0	1.00	-		ہے ا	-	-	0
5	707 0	95	0.0	1.0	2 • 00	-	-	-	-	-	-
9	1 TP:JCK	9	20.0	50.0	. 60	-	-	-	-	-	0
_	9 DRIVER	В	20.0	50.0	09.	-	-	М	-	7	0
œ	2 FKLFT	10	20.0	50.0	1.00		7	7	~		0
6	1 FKLFT OP	12	20.0	50.0	1.00	-4	-	m	-		0
۔ 2	O HANDLUAN	~4	20.0	50.0	-5.00	-		4	-4		0
	8 LOADMSTR	13	20.0	80.0	1.00	-	-	S	-	-	0
12 1	NEW O	95	20.0	80.0	2.00	-	-	н	-		-
<u> </u>	5 AL ARM	95	20.0	80.0	1.00	-	H		-	-1	0
•		11	0.09	0.09	1.00	-4	- -1	H	-	~	0
15 12		~	0.09	0.09	1.00	-	1	m	-		0
9		9	60.09	60.0	04.	-	-	 í	,-d	-	0
. 7	9 DRIVFR	m	0.09	60.0	04.		-	m	-	-	0
18	3 RIGGEP	80	0.09	60.0	1.00	-	H	4	-	~	0
1 61	o MEN	95	80.0	0.0	2.00		-	-	1		-
20 7	4 PARTS	14	10.0	10.0	100.00	-	١,,	-1		-1	0

* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *	• • • • • • • • • • • • • • • • • • • •				
1	-2• v	22. V	46. V	70. V	• * * * * * * * * * * * * * * * * * * *	.18.
-2.5			¥	4		
^			<u> </u>	>		
^ ′	0410		¥:	4		
^ -			> -	>		
^ /			ৰ	∢ :		
•			,	>- ·		
۸ ۸	5]		र्व 5	∢)	•	
. ^			•	· •		
. ^			đ >	< >		
18.			• 4	• <		
^						
^						
^			02 Y	90		
^						
^			>	>-	•	
^			Ä	₩.		
^ '			•	>- ·		
A 4			¥	⋖ :		
^ ^			-	>		•
			ď >	∢ >		.'
			→ α	- α		
15) N			
^			iểo	1 &		
^			.2	7		
^			'n	8		
^			7	2		
۸ ۸			7	2		
7.85			1 0	4 c		
^			N	20309		
^			i Ra	81213		
^			7	201		
^ 4			ه ا	æ:		
^ ^			7 0	7		*
. ^			Š k	۰ ۵	x	
^			. m	98		
^			2	7		
78.			80 1	ω.		
۸ ۸	10		7	7		
. ^						

~~~~	
AND INPUT CHECKS	
INPLIT	. 5111
ANO	'n
IrPUT	H
FINISHED INPUT	CPULIA
4 ~~~~~	22TIMER 23

<***> *6665	**** ***	5999. <***>		<**** *6665
. 6999.	4000	•6664	. *6664	4 9 9 9 9 8 7 8
2999. 3999. AT TIME 120.00 <<< ITOP ) = 52533	2999, 1805188995. TIME 120,00 <<<	2999. 1810542418. TIME 120.00 <<< TIME 1080.00 <<<	* 6	TIME 540.00 <<< TIME 840.00 <<< TOP) = 52533 2999, 670126151.
* 1999. D A LITE FAILURE TOP OF MEMORY (	EFDS = 1999. 29. 6 4AD A LITE FAILURE AT TIME 981. TOP OF MEMORY ( ITOP )	* 1999.  D A LITE FAILURE AT FAILURE AT AT FAILURE AT AT AT AT A AT AT A AT A AT A AT A	TOP OF MEMORY ( II	14 HAD A LITE FAILURE AT TIME 8 HAD A LITE FAILURE AT TIME • 535. TOP OF YEMORY ( ITOP ) SFEDS = 1999. 29
1. RND. MB. SEEDS 2 AT TGT. PT. & HA 1. CPUTIM= 3.746.	2. RND. ND. SEFDS 2 AT TGT. PT. 6 4A 2. CPUTIM= 3.981.	3. RND. ND. SEEDS 2 AT TGT. PT. B HA 2 AT TGT. PT. B HA 2 AT TGT. PT. B HA	CPUTIM= 4.2	3 AT TGT. PT. 14 HAU 2 AT TGT. PT. 8 HAU 4. CPUTI4* 4.535. 5. RVB. VJ. SFEDS
<pre>&lt;***&gt; BEGINNING REPLICATION </pre> <pre>&gt;&gt; 1.000 UNIT FRIM IB </pre> <pre>ZTIMERX FINISHED REPLIF.</pre>	BEGINNING REPLICATION 1,000 (INIT FR14 ID PZZ FINISHED REPLIC.	BEGINNING REPLICATION  1.000 UNIT FR7M ID  1.000 UNIT FR7M ID	FINISHED REPLI	1.000 UNIT FROM ID 1.000 UNIT FROM ID RZZ FIMISH, D RFOLIC. BEGINNING REPLICATION
<pre>&lt;***&gt; BE </pre>	<***> BEI	157	727IMER27,	221146RZZ 221146RZZ **** BE

8 HAD A LITE FAILURE AT TIME

2 AT TGF. PT.

1.000 UNIT FRJM ID

>>> 1.000 UNIT FR14	0 1 1	2 AT TGT. PT. 8 HAD A LITE FAILURE AT TIME 960.00 <<< 3 AT TGT. PT. 14 HAD A MED FAILURE AT TIME 1140.00 <<<		•
ZZTIMERZZ FINISHE9 REPLIC	. IC.	5. CPUTIM= 4.431. TOP OF MEMORY ( [TOP ) = 52533		
<pre>&lt;***&gt; BEGINAING PEPLICATIO</pre>	41194	4 6. RND. ND. SEEDS = 1999. 2999. 1124268690.	•6667	5999, <***>
>>> 1.000 UNIT FRMY >>> 1.000 UNIT FRMY	22	2 AT TGT. PT. 3 HAD A DEAD FALLURE AT TIME 660.00 <<< 3 AT TGT. PT. 14 HAD A LITE FALLURE AT TIME 960.00 <<<		
ZZTIMERZ; FINISHED RE°LIC	٠ 10 ٠	6. CPUTÍM= 5.133. TOP OF MENORY ( ITOP ) = 52533		
<***> BEGINNING REPLICATION	AT I GN	N 7. RND. NJ. SEEDS = 1999. 2999. 749783280.	*6664	5999。 <***>
1.000 UNIT	201	AT TGT. PT. 8 HAD A LITE FAILURE AT TIME 730.0 AT TGT. PT. 14 HAD A LITE FAILURE AT TIME 1020.0		
ZZIJNEKZZ FINISHED REPLICA 851		7. FPUTIM: 5.390. TOP DF MEMORY ( ITOP ) = 52533		
<***> BEGINNING REPLICATIN	ATINA	4 8. RND. NO. SEEDS = 1999. 245050230.	*6667	5999. <**
ZZTIHERZZ FINISHED REPLIC	٠ ١٥٠	8. CPHIIM* 5.603. TDP DF MEMORY ( ITOP ) = 52533		
<>**> BEGINNING REPLICATION	ATION	1 °• PND• NO• SEEDS * 1999• 2999• 2082820840•	•6667	5999 _* <***>
>>> 1.000 INIT FRUM >>> .031 UNIT FRUM >>> 1.000 INIT FRUM >>> .500 INIT FRUM		2 AT TGT. PT. 3 4AD A LITE FAILURE AT TIME 190.00 <<< 2 AT TGT. PT. 3 HAD A LITE FAILURE AT TIME 300.00 <<< 2 AT TGT. PT. 8 HAD A LITE FAILURE AT TIME 660.00 <<< 2 AT TGT. PT. 4 1AD A LITE FAILURE AT TIME 840.00 <<<		
ZZTIMERZZ FINISHED P.C°L	٠١٢.	9. CPUTIM* 5.890. TOP OF MEMORY ( ITOP ) * 52533		
<***> BEGINNING PEPLICATION	ATION	1 10. RNA. YA. SEFJS = 1999. 2999. 2004474919.	*6667	5999. <***>
>>> 1.000 UNIT FRNY TO	4 10 4 10 7 10	3 AT TGT. PT. 14 4AA A MED FAILURE AT TIME 660.00 <<< 3 AT TGT. PT. 14 HAD A DEAD FAILURE AT TIME 1020.00 <<< 10. CPUTIM* 6.153. TOP OF MEMORY ( ITOP ) * 52533		

1,000 UNIT FROM ID 4,903 UNIT FROM ID 601 UNIT FROM ID 1,000 UNIT FROM ID 6885 UNIT FROM ID 6885 UNIT FROM ID 7,558 UNIT FROM ID 7,568 UNIT FROM I
**** BEGINNING REI  ***

JN 16. RND. NJ. SEEDS = 1999. 2999. 387665568,, 4999. 5999. <***> D 2 AT TGT. PT. 8 HAD A DEAD FAILURE AT TIME 660.00 << D 3 AT TGT. PT. 14 HAD A LITE FAILURE AT TIME 1080.00 << . 16. CPUTIW= 7.335. TOP OF MEMORY ( ITOP ) = 52533	TH 17. RND. ND. SEEDS = 1999. 2999, 945264352, 4999. 5999, <***> D 2 AT TGT. PT. 8 HAD A LITE FAILURE AT TIME 540.00 <<< D 3 AT TGT. PT. 14 HAD A MED FAILURE AT TIME 660.00 <<<	## 18. RND. NO. SEEDS = 1999. 2999. 1224942675. 4999. 5999. ****> ### 18. TGT. PT. 14 HAD A LITE FAILURE AT TIME 660.00 <<<	ON 19, RND, ND, SEEDS * 1999, 2999, 1831217830, 4999, 5999, <***> D 2 AT TGT, PT, 8 HAD A DEAD FAILURE AT TIME 420,00 <<< . 19, CPUTIM* 8,736, TOP OF MEMORY ( ITOP ) * 52533	AN 20. RND. NO. SEEDS = 1999. 2999. 1395710225. 4999. 5999. <***> O 2 AT TGT. PT. 8 HAD A DEAD FAILURE AT TIME 660.00 <<< . 20. CPUTIM= 9.007. TOP OF MENJRY ( ITOP ) = 52533	94 21. RNP. NO. SEERS = 1999. 2999. 1996409884. 4999. 5999. <***> 0 2 at tgt. Pt. B 4AD & Lite Failure at time 180.00 <<<
10. KNU. W3. SEEDS = 2 AT TGT. PT. 8 HAD A 5. CPUTI4= 7.936. TG	17. RND. MD. SEEDS = AT TGT. PT. 8 HAD A AT TGT. PT. 14 HAD A . COUTIM= 8.192. T2	18. RND. NO. SEEDS * AT TGT. PT. 14 HAD A AT TGT. PT. 8 HAD A . CPUTIM* 4.448. TE	). KND. ND. SEEDS *  1 TGT. PT. 8 HAD  CPUTIM* 8.736.	OF THE PT. 8 HAD COUTINE 0.007.	11. RN9. NO. SEEDS = AT TGT. PT. B 4AD
**** BEGINNING KETLICALIJN  >>> 1.000 UNIT FROM ID  ZZTIMERZ FINISHED REPLICA	<pre>&lt;***&gt; BEGINNING REPLICATION &gt;&gt;&gt;</pre>	<pre>&lt;***&gt; BEGINNING REPLICATION &gt;&gt;&gt;</pre>	<pre>&lt;***&gt; BEGINNING REPLICATION  &gt;&gt;&gt;</pre>	<pre>&lt;***&gt; BEGINNING REPLICATION  &gt;&gt;&gt;</pre>	<pre>&lt;***&gt; BEGINNING REPLICATION &gt;&gt;&gt; 1.000 UNIT FROM ID</pre>

>>> 1.000 UNIT FRAM ID 3 4T TGT. PT. 14 HAD A LITE FAILURE AT TIME 780.00 <<< 22TIMERZ: FINISHED REPLIC. 21. CPUTIM= 9.263. TOP OF MEMORY ( ITOP ) = 52533 <+***> BEGINNING REPLICATION 72. RND, NO. SEEDS = 1,999. 2999. 117254115.	•6666	5 9999
IC. 22. CPUTIM* 9.477. TOP DF MEMORY ( ITOP ) * 52533 TION 23. RND. NA. SEEDS * 1999. 2999. 324718	*6664	\$ 6665
FINISHED REPLIC. 23. CPUTIM* 9.898. TOP OF MEMORY ( ITDP ) = 514NING REPLICATION 24. RND. NO. SEEDS * 1999. 2999.	• 6666	\$ 6665
FINIS-4ED REPLIC. 24. CPUTIM* 10.143. 10P UF MEMORY ( 1TDP ) = 61NNING REPLICATION 25. RND. ND. SEEDS = 1999. 2999. 1.000 UNIT FROM ID 3 AT TGT. PT. 14 MAD A LITE FAILURE AT TIME 91.000 UNIT FROM ID 2 AT TGT. PT. 8 MAD A LITE FAILURE AT TIME 13	• 666	\$ 6665
ZZTIMĘRZZ FINISHED REPLIC. 25. CPUTIM: 10.391. TJP OF MEMORY ( ITOP ) = 52533  <***> BEGINNING REPLICATION 26. RND. NJ. SEEDS = 1999. 2999. 1220726318.  ZZTIMERZZ FINISHED REPLIC. 26. CPUTIM= 10.604. TDP OF MEMORY ( ITOP ) = 52533	*6667	\$ •6665

2666. <***>

4666

2999. 1806678964.

1999.

RND. 40. SEED3 =

27.

<***> BEGINAING REPLICATION

52533
1100
MEMORY (
TOP 0F
101
10.813.
27. CPUTIME
REPLIC.
FINISHED
ZZTIMFRZZ

<***> BEGINNING REPLICATION 28. PND. NO. SEET	SEEDS *	1999. 2949.	46999843,	•6664	2999. <***>	
2>> 1.000 UNIT FR74 ID 2 AT TGT. PT. 8 r ZZTIMERZY PINISHED REPLIC. 28. CPUTI4= 11.05	PT. 8 HAD A LITE : 11.054. TOP OF	FALLURE AT TIME 1 MEMORY ( ITOP ) =	1260,00 <<< 52533			
<***> BEGINNING REPLICATION 29. RND. NJ. SEEC	NO. SEEDS .	1999, 2999	2133290449.	4999.	· <***> •6665	
>>> 1.000 UNIT FROW IS 2 AT TGT. PT. 8 H ZZTIMERZZ FIWISHED REPLIC. 29. CPUTJM* 11.303	PT. 8 HAD A MED 11.303. TOP OF	FAILURE AT TIME IV MEMORY ( ITOP ) *	1080.00 <<< 52533			
<pre>&lt;***&gt; BEGINNING REPLICATION 30. RND. NO. SEEC 80</pre>	NO. SEEDS .	1999. 2999.	2092020653.	•6664	2999. <***>	
>>> 1.000 UNIT FRAM ID 2 AT TGT. PT. 5 - XXTIMERXX FINISHED REPLIC. 30. COUTIM* 11.557	5 44D 4 0EAD 11.557. TOP OF	AT 1146 ITOP ) *	900.00 <<< 52533			
<***> BEGINNING REPLICATION 31. RND. NO. SEEG	NO. SEEDS .	1999. 2939.	1759266249.	*6665	2999. <***>	
ZZTIMERZZ FINISHED RFPLIC. 31. CPUTIM= 11.771	11.771. TOP 9F	MENDRY ( 110P ) .	52533			
<***> BEGINNING REPLICATION 32. RND. ND. SEEG	∿û. SEEDS ≈	1999. 2939.	2939. 1267681699.	*6667	2999. <***>	
>>> 1.000 UNIT FR14 ID 3 AT TGT. PT. 14 H >>> 1.000 UNIT FR14 ID 2 AT TGT. PT. 8 H >>> 1.000 ANIT FR14 ID 2 AT TGT. PT. 9 4 ZZTIMERZZ FINISHED REPLIC. 32. CPUTIM= 12.021	PT. 14 HAD A DEAD PT. 8 HAD A LITE PT. 3 HAD A LITE 12.021. TOP OF	FAILURE AT TIME FAILURE AT TIME PAILURE AT TIME 10 MENORY ( ITOP ) =	306,00 <<< 720,00 <<< 1026,00 <<<			

BEGINNING REPLICATION 33.	RND. NO. SFEDS . 1999.	2999. 1003989602.	.6664	5999. <***>
1.000 UNIT FROM ID 2 AT TGT. FINISHED REPLIC. 33. CPUTIME	PT. 9 4AD A DEAD FAILURE 12.325. TOP OF HEHORY	AT TIME 180,00 <<<		
BEGINNING REPLICATION 34.	RND. MD. SEEDS = 1999.	2999• 20256:10662•	. *6667	5999。 <***>
1.000 UNIT FROM ID 3 AT TGT. 1.000 UNIT FROM ID 2 AT TGT. FINISHED REPLIC. 34. CPUTIM=	TGT. PT. 14 4AD A LITE FAILURE . TGT. PT. 8 HAD A DEAD FAILURE . UTIM* 12.600. T3P OF MEMORY (	AT TIME 420.00 <<< AT TIME 900.00 <<< ( ITJP ) = 52533		
<pre>&lt;*** BEGINNING REPLICATION 35.</pre>	RND. NJ. SEEDS = 1999.	2999, 1954160732,	•6664	5999. <***>
FROM TO 2 AT FROM TO 2 AT		AT TIME 1 AT TIME 12		
FINIS453 REPLIC. 35. CPUTIME	IM= 12.393. TGP OF MENORY (	( ITJP ) = 52533		
<*** BEGINAING REPLICATION 36.	RND. 40. SEEUS * 1999.	2999. 1447173834.	•6664	5999, <***>
1.030 UNIT FROM TD 2 AT TO 1.000 UNIT FROM ID 3 AT T	TGT. PT. 8 4AD A LITE FAILURE TGT. PT. 14 HAD A LITE FAILURE	AT TIME 720.00 <<<		
FINISHED REPLIC. 36. COUTIME	IM* 15.139. TOP OF MEMORY (	( Ifgp ) = 52533		
<pre>&lt;***&gt; BEGINNING PFPLICATION 37.</pre>	RND. NO. SEEDS = 1999.	2999. 1409293685.	*6664	5999, <***>
1.000 UNIT FRIM IN 3 AT TGT. FINISHED REPLIC. 37. CPUTIM=	PT. 14 HAD A LITE FAILURE 13.373. TOP OF MENORY	AT TIME 1080.00 <<<   IIOP   = 52533		
<pre>&lt;***&gt; BEGINNING REPLICATION 3A.</pre>	AND. 40. SEEDS = 1999.	2999. 294893096.	. *665*	2999。 <***>
1.000 UNII FROM IN 3 AT T	TGT. PT. 14 HAD A LITE FAILURE	: AT TIME 605.00 <<<	x	

	* * *		*		*		*		*
	•6665		6665		6665		•6665		•6665
	•6067		•6664		•6664		•6664		*6667
AT TIME 840.00 <<< AT TIME 1270.00 <<< ITOP ) = 52533	2949. 733845 IIME 420.00	AT TIME AT TIME ITOP ) =	2999. 1158764627. AT TIME 1260.00 <<< AT TIME 1260.00 <<<	ITOP ) = 52533	2999. 1539578	AT TIME 780.00 <<< AT TIME 960.00 <<< AT TIME 1320.00 <<< ITOP ) = 52533	2999, 1307283016,	AT TIME 240.0 AT TIME 240.0 AT TIME 840.0 AT TIME 10190.0	IIOP   r
6 HAD A LITE FAILURE 8 HAD A LITE FAILURE 3.651. TOP OF MEHORY (	EDS = 1999. HAD A LITE FAILURE	FAILURE FAILURE MEMORY (	SEEDS = 1999.  6 HAD A LITE FAILURE 14 HAD A LITE FAILURE	4.209. TOP OF MENURY (		14 HAD A MED FAILURE 8 HAD A MED FAILURE 9 HAD A LITE FAILURE .552. TOP OF MEMORY (	SEEDS . 1999.	6 4AD A LITE FAILURE 14 AAD A LITE FAILURE 8 AAD A HED FAILURE 4 AAD A LITE FAILURE	4.899. TOP OF MEMORY ( SEEOS * 1999.
2 47 161. PT. 2 AT 161. PT. 38. CPUTIM= 12	30. PND.		40. RND. MI. 2 AT IGI. PI. 3 AT IGI. PI.	40. CallIM* 1.	41. RND. 43.	3 AT 16T. PT. 2 AT 16T. PT. 2 AT 16T. PT. 41. CPUTIM# 14	42. RND. 4D.	AT 161. PT. AI 161. PT. AI 161. PT. AT 161. PT.	42. CPUTIM= 14
>>> 1.000 UNIT FROM ID >>> 1.000 UNIT FROM IO ZZIIMERZZ FINISHED RFPLIC.	*** BEGINAING REPLICATI	755 1.000 MNIT FR14 ID 757 . 241 MNIT F014 ID 72TIMERXX FINISHFD REPLIC.	<pre>&lt;***&gt; BEGINNING REPLICATION &gt;&gt;&gt;</pre>	ZZIIMERZZ FINICHED RFDLIC.	**> BEGINNING REF	>>> 1.000 UNIT FR14 ID >>> 1.000 UNIT FR14 ID >>> 0.26 UNIT FR04 ID %%IMERX FINISHED RE°LIC.	<***> BEGINNING REPLICATION	1.000 UNIT 1.000 UNIT 1.000 UNIT .034 UNIT	ZZIMERZZ FINISHEO REPLIC.  <***> BEGINNING REPLICATION

	Ÿ o*		; ;							* *			
	5999•		6665				5999			5999		5999	
	.999.		•6664			v	•666			•6664		•666	*
	4		4				4			64		4	
<b>* * *</b>	. 500.	**	798.	***			898.	* *		697.		3113.	****
00	1048203200	533	193592479	888	533		1091677898	00	33	213040697	93	2026083	
300.00 960.00 1200.00 52533	•	300.00 1200.00 52533		120.00 540.00 900.00	525			9000	525		525	. 202	60,00 240,00 420,00 1440,00
TIME TIME TIME	2999	TIME TIME OP) =	2999	INE	•		2999.	##	-	6662	~	5999	
AT TI AT TI AT TI ITOP		AT TI AT TI ITOP		AT T1 AT T1 AT T1	1100			AT TI AT TI	1100		1100		AT TI AT TI AT TI AT TI
	• •		•		RY (		•		RY (	•	٠ ۲	•	
FAILURE FAILURE FAILURE MEMORY (	1999	FAILURE FAILURE MEMORY (	1999	FAILURE FAILURE FAILURE	HEHORY		1999	FAILURE FATLURE	AGHORY	1999	ЯЕНJRY	199	FAILURE FAILURE FAILURE FAILURE
LITE MED DEAD		DE AD MED P OF		LITE LITE LITE	P 0F			LITE	P 0F		P 0F		LITE LITE LITE
0 0 0 A A A T.	W	0 A 10		444	10			∢ ∢	10		10P	¥	4444
14 4AD 9 HAD 14 HAD •182•	SEEDS	8 HAD 14 HAD •524•	SEEOS	14 HAD 8 HAD 14 HAD	.401.		SEEDS	8 4AD 8 HAO	.059.	SEEDS	.272.	SEEDS	14 4AD 8 4AD 8 HAD 14 1AD
 15	.GA	:: ::	.CS.	202	15		C.	.•.•	16	, O.	91	ND.	
	RND.	7. PT	RND.		¥.		RND.	4 A	# E	RND.	я э;	RND.	
r tGT. r tGT. r tGT.	•	7 TGT.		161	PUTIM			161	PUTIM*		*KILNa5	ĸ	161 161 161
23 A A T A A T C . C . C . C . C . C . C . C . C . C	44	2 AT 3 AT 46. C	45,	3 AT 2 AT 3 AT	45. C		<b>,</b> 64.	2 AT 2 AT	, 66.	47.	47. C	ě,	3 A A A A A A A A A A A A A A A A A A A
10 10 10.	T10%	ID IC.	1104	10 10 10	10.		1104	10	10.	TION	• 21	TION	011001
FR034 FR34 FR94 REPL	REPLICA	FROM FROM REPL	4	FROY FROM	REOL		REPLICAT	FRO4 FRO4	RE PL)	REPL ICA1	REPLI	REPLICAI	FR04 FR04 FR04 FR04
	žEP		REPL IC	UNIT				. UNI				REP	TINDO
000 UNIT 000 UNIT 000 UNIT FINISHED	9~I7	1.000 UNIT 1.000 UNIT FINISHED	9 NI	222	FINI SHEO		ر ۱۲ ۱۲		FINISHED	ING	FINISHED	9 11	5555
	BEGI NNI NG		BEGIANING	1.000			BEGINNING	1.000		BE G INNING		BEGINNING	1.000 1.000 .203
# E & %		HER 27	٨		MERZ				A GR		16R 23	<b>A</b>	
>>> >>> >>> %TIMER	<b>** *</b>	>>> >>> ZZTIMER	* * *		ZZTIMERZZ	14-	<b>***</b>	^ ^	zztimerzz	<b>**</b>	ZZTIMERZZ	**	
						165							

## 16.573. TOP OF MEMORY ( ITOP ) * 52533 ZZTIMERZZ FINISHED REPLIC. 48. CPUTIM=

2999. <***>			<***> *6665		
•6665			•6664		
2999. 402750080.	T TIME 180,00 <<< IT TIME 240,00 <<< IT TIME 1020,00 <<<	ITOP ) = 52533	2999, 2013739972,	AT TIME 720.00 <<< AT TIME 900.00 <<< AT TIME 1320.00 <<<	ITOP ) * 52533
EDS = 1999.	14 HAD A LITE FAILURE AT TIME 8 HAD A LITE FAILURE AT TIME 8 HAD A LITE FAILURE AT TIME	16.988. TOP OF MEMORY ( ITOP ) * 52533	EDS = 1999.	8 HAD A LITE FAILURE AT TIME 14 HAD A LITE FAILURE AT TIME 9 HAD A LITE FAILURE AT TIME	17.232. TOP OF MEMORY ( ITOP ) * 52533
49. RND. NJ. SEEDS *	3 AT TGT. PT. 14 2 AT TGT. PT. 8 2 AT TGT. PT. 8	40. CPUTIN* 16.8	50. RND. MO. SEEDS =	2 AT TGT. PT. 3 AT TGT. PT. 14 2 AT TGT. PT.	50. CPUTIM* 17.
<pre>&lt;***&gt; BEGINNING PEPLICATION</pre>	>>> 1.000 UNIT FROM ID >>> 1.000 UNIT FROM ID >>> 1.000 UNIT FROM ID	ZZTIMERZZ FINISHED REPLIC.	<pre>&lt;***&gt; BEGINNING REPLICATION</pre>	>>> 1.000 UNIT FR9M TD >>> 1.000 UNIT FR9M TD >>> 1.000 UNIT FR9M TD .>>> .917 UNIT FR9M T9	ZZIIMERZZ FINISHED REPLIC.

いるなどは、このでは、これにはなるなりなかなから、これをなるない。これは、なないない。

THIRD RUN ( RUN3 ) — FAILURES AND REPAIRS THIRD EXAMPLE PUN — REPAIPS RUN ID # 07/12/84 15.59.50. **** REPEAT IF WARNINGS FROM THIS RUN ****

HAS NJ CORRESPONDINGLY NAMED ASSET - ASSUMING DUMNY LINK DUMMY LINK CREATED DUMMY LINK CREATED #!#:* WARNING #!*!* CAN NOT FIND ASSET OR LINK NAMED HANDLOAD CAN NOT FIND ASSET OR LINK NAMED REPAIR *** WARNING *** LINK HANDLUAD *! *! * NARNING *! *! *

0

0000000000000000000000000 20-29 30-39 000000000000000000000000 64-04 FREQUENCY DISTRIBUTION OF RESULTS 50-59 0000044400000000044404044 69-09 70-79 80-89 0000000000000000000000000 0000000000000000000 CHNS 9.0 *** .000 .014 .020 .018 020 .022 .022 .021 .022 .010 .017 .018 .020 **EFFECTIVENESS** .021 .020 .019 11.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1 .83 60.00 120.00 190.00 370.00 420.30 480.30 600.30 660.30 730.33 1020-50 1090-50 1140-00 1270-50 1320-50 1380-50 340.00 0.00 10.00 40.00 300.30 550.00 780.00 960.00 TIME ***

0	****
REPLICATION	经存款证据 计存储设计 化二甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基
FOR	* * *
TISE	****
VS.	****
ı	ž
ASSET SURVIVORS - INCLUDING CONTAMINATED - VS. TIME FOR REPLICATION	****
INCLUDING	*******
1	¥
SURVIVORS	****
ASSET	***

	.0	8	8	8	24	- 92	.84	92.	.71	.67	. 62	20	54	8		98	62.	9	<u> </u>	3 6	200	ר מ ר מ		2 6	67								. sts	٠	, +1	٠	, 0	0	0	0	0	0	٥	,	
	100	100	100	200	6	66	66	66	66	6	66	66	66	66	66	5 6	2 0	, 0	÷ 0	. 0	0	0	9	0	98								₹.		•	:									
13	1.00	9	o	°	•	•	÷	৽	٥.	၀	°	0,	0	٠,	٠,	•	•	•	•	•	•	? ?	? ?	9	•					*			LOADMS		13	50	٥,	0	0	0	0	20	c		•
12	1.00	•	•	٠	٠	•	٠			•	•	•	•	•	٠	•		•	•	•	٠	•	• •		1.00								FKLFT	•	12	50	, 0	0	0	0	0	50	c	,	,
11.	1.00	1.00	•	•	٠	•	٠	٠	٠	•	•	•	•	•	•	1.00	•	•	•	•	•	•	• •	•	1.00								CRANE	•	11.	50	(0	0	0	0	0	50	c		,
0	9.00	0	0	0	0	0	0	0	0	O	0	0	0	0	0	0	Э (	<b>)</b> (	<b>&gt;</b> <	<b>&gt;</b> 0	<b>o</b> c	) C	) С	) C	9.00								• FKLFT •	•		50	· •	0	0	0	0	20	c		,
0	1.00	٠.	•	٠.	ó	•	٥.	ç	0	•	•	•	٥,	٠.	•	•	•	•	•	•	•	•	2	20	•					LINEL			.R/T UP.	•	•	50	, o	0	0	0	0	20	c		,
	00.1	•	•	•	٠	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	•		• •	•			_	¥	TED IN			. XIGGER.	•	80	50	, 0	0	0	0	0	20	c	;	>
	1.00	•	٠	٠	٠	٠	•	٠	٠	٠	٠	٠	•	•	٠	•	•	•	٠	٠	٠	•		•			7	3 -	- Z - Z - C	5	~ ~	* * *	. CRANE .		~	50		9	0	0	0	5.0	•	-	>
	1.00	٠	٠	•	•	•	•	٠	•	•	•	٠	•	•	•	•	•	•	•	•	•	• •		•	•		101	Z :	77476	THIJS	a ü	* * * *	TRUCK	•	¢	50	, 0	0	O	o	0	20	<		,
	2.00	•	٠	٠	٠	•	٠	•	•	٠	•	•	٠	•	•		•		•	٠		•	, .			0	-	710 17	7 E E S	٦. چ		****	• 15 L E	•			0	0	0	0	0	٥	<	,	>
,	1.00	٠	٠	•	٠	٠	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	• •	•	•	1.00	ICATION	787	1 2 C L	MITED	COMPO	<b>-</b> ⋈	****	. NIUDA.	•	·	50	ိုင်	· c	0	¢	c	50	<		>
6	1.00	0	•	96.	en	0	0	0	0	0	. 03	0 0	x (	· ·	٣ (	,	ra	٠α	9 6	٦ α	ì	ς σ	, en	ď	. 33	Jo PEPL	1	V 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	VE AK	0	a Ilable Limitin	****	• 081VER	•	m •	•	0	0	Ç	0	0	0	<		>
	. 0	e.	•	<b>*</b>	8	٠٠٠	80		. 85	88	-87	.87			2.	0,1	7 4		3 4			2 4		99.	.71	TIME		ď F	-	-	AS-AV IIYES	****	·REPAIR	•	. 2		. 0	0	o	0	0	ဂ	<		>
m }	1.00	1.00	1.00	1.00	00.	00.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	00.1	1.00	00.1		000		200		00.1	1.00	00.1	1.00	LTS VS.	1	* *	. 4	-	_	****	• HANDL'I						0				ح		•
	00.0	٥.	•	9	•	Ö.	o,	ó.	o,	0	ó٠	o o	9	၁ (	j,	5 0	2 0	9	2	2 0	2	2	9	20	0	NK RESUI	7 7 7	בושב בושנו	2 2	7	LIZ	*		-	IME	00.0	)					10.00		_	

0	100000	N00000	400000	200010	00000	r000r0	900000	00000	000000
								ő., >200 Å	
0	00000	400000	000000	% 00000	& 00 0 0 0	4 00000	400000	<b>4</b> 00000	200000
0	0,00000	φοοοοο •	* 00000	47 266 0 0 0	4 3,000 000 000 000	8, 00100	\$ 5 0 0 0 0 0	65 0 0 0 0	, 1, 0, 0, 0, 0,
0	00000	400000	00000	% 00000	60000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4,0000 ,	# 0000	~, , , ,
0	000000	00000	00000	00000	00000	000000	00000	ç 000	300000
0	ç	£00000	\$00000	<b>1,00000</b>	300000	*00000	400000	20000	200000
0	400000	400000	\$00000	, , , , ,	400000	**************************************	* * * * *	<i><b>4</b></i> 00000	7, 0000
0	000000	000000	000000	00000	00000	00000	00000	000000	30000
0	00000	000000	000000	000000	00000	000000	000000	000000	000000
0	000000	00000	00000	00000	00000	000000	60000	60000	Ç c o o o o
0	000000	000000	000000	000000	00000	00000	000000	00000	ccoeco
၁	100000	N00000	400000	5 0 0 12 3 4 4	0000	۲000۲,	\$ 000 p	7 0 0 0 0 0 0 0 0 0	10 4 4 4 10 10 10 10 10 10 10 10 10 10 10 10 10
c	00000	00000	0000000	113 00 00 00 00	11. 0 0 0 0 0	1 %0000	## 0 0 0 0	7 × × 0 0 0 0	~~~~~~ ,
•		120.00		• • • • • •	• • • • •	370.00	• • • • • •	. 00.084	

11000000	500000	r00080	800000	<b></b>	100000	000000	130000	113 0 0 0 113 .
						•	0000	
400000	φοοοοο m	900000	% 00000	\$00000 m	900000	m 0 0 0 0 0	m 0 0 0 0 0	# 00000
4, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,	#00%00	400,000	4, 000100	00000	#00%00	f # 1	44 0000 0000	2,0000
							* ************************************	
00000	00000	00000	000000	00000	00000	00000	00000	000000
400000	<b>400000</b>	400000	400000	, , , , ,	m00000	m00000	400000	, , , , ,
4,40000	, o o o o	40000 V	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	~ ~ ~ ~	£0000	# c w o o o	10w000	40%000
20000	က္လဝဂဝဂ	000000	00000	00000	00000	000000	900000	çoosan
000000	000000	00000	000000	00000	00000	000000	00000	00000
20000	000000	00000	00000	00000	00000	00000	00000	00000
00000	000000	00000	00000	000000	000000	00000	600000	60000
00 00 00 00 13 14	10 00 00 24 24	, 000 0 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	× 2000×	\$000 x m	11 0 0 5 3 3 4 4	000001 00001	13 16 0 0 10 10 5	13 0 13 0 13 0 0
°,0000	12 < 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	14 14 0 0 0 0	134 0 0 0	17 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	14 14 0 0 0	17 17 0 0 0 0	17 17 0 0 0 0	13 1966 0 0
							1020.00	

110000	150000000000000000000000000000000000000	*c \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	11 0000	400010
			5 40000 2 40000	
30000	% 00000	00000 m	# 00000 H00000	w 00000
# N O K 3 3	4 w 0 w 0 0	#400000	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
31. 34. 0000	4 K O O O O	% 0000 %	31 31 31 00 00 00 00 00	8,40000 ,
00000	00000	000000	000000	00000
400000	40000	400000	<i>4</i> 00000 <i>4</i> 00000	<i>w</i> 00000
# 0 % 0 0 0	100000	#0%000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	65 00 00 00
			00000 700000	
			000000	
			00000 000000	
000000	000000	00000	000000 000000	000000
11 0 0 0 12 12 6<<	15 0 0 0 10 7	1,4 1,4 1,0 1,0 8,4	11 0 0 0 13 8 << 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	14 0 0 7 7
19 0 0 0	15 16 0 0 0	118 118 0 0 0	19 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21 5.50 5.50 0
•••••	•••••	•••••	• • • • • • • • • • • • • • • • • • • •	•••••
1140.00	1200.00	1270.00	1320.00	1440.00
			171	

OCCIL PERSONALUCIO CON ROCCOM DOCUMENDA DE CONTRA DE CON

COMPOUND LIMK PARTS VS. TIME ************

AVFRAGE EFFECTIVENESS USED, DVER ALL REPLICATIONS ( NITE: IF CPL VIT WEAK, WORE CAPABILITY MAY MAVE BEEN AVAILABLE THAN WAS USED )

2	1.00												
1.	1.00	1.00	•	96.	.93	٠,	16.	93	.03	70.	76.	<b>50.</b>	5
TIME .	:0	10.00	0	20.0	90.0	40.0	0.00	70.0	20.0	60.0	50.0	0	60.00

	************							
	TIMES WEAKEST VS. TIME  ***********************************	, o <del>.</del>	٦ 2	ታ ለነ	o N	4	<i>ለ</i> ታ	¢
	**************************************		0 0	10 0 13 0	12 0	11 9	0 0	0
77.7.7.7.7.2.2.2.2.2.2.2.2.2.2.2.2.2.2.				с с с	o c	c	o c	o
00000000000000000000000000000000000000	JLTS: C			cc	с c	0	c c	0
730.00 780.00 840.00 910.00 910.00 1020.00 1140.00 1270.00 1320.00 1340.00	SEGHENT RESULTS: CUMUL. ************************************	10.00	120.00	190.00	00 00 00 00 00 00 00 00 00 00 00 00 00	420.00	480.00	00.009

દ

660.00
730.00
780.00
840.00
910.00
1020.00
1140.00

								•							
о <i>и</i> и 4		×													
0000	0		•												
23 23 24 24 24 24 24 24 24 24 24 24 24 24 24	21	•													
	TIME TIME NESS NGEST	HAIRS 1 10 10													
0000	: 0 : TS VS. TIME : ECTIVENESS : STRONGEST		1.00	50.	. 93	.91	.91 50	. 93	. 93	.93 50	50	. 50	9.00	. 90	08.
-,	HE HE	•••		• • •	• •	• •	• •	• •	• •	• •	• •	• •	• •	• •	• •
1200.00 1270.00 1320.00	1440.00 :: CHAIN RESULT: ************************************	TIME	10.00	#	190.00	240.00	300.00	370.00	420.00	480.00	. 550.00	00°009	00.099	730.00	780.00
				173					•						

			EPAIRS )					MED DAM	0000
			NT INUED RE			•			0.00 0.00 0.08 0.05 0.05
MED IUM	BVC 0	.05	ae orsca		DEADFAIL	165		CONTAMO	000
	DANE GRDERD	0 .16 8 .18	REORDERS		HED.FAIL	160		FAITIAL UNHAPHED CONTAMS	1.00 71 83
ABLE ITEY ************************************	FRD DINE	.81 .70 .65 .48	CL!IDES ANY		LITEFAIL	. 773 . 549		INITIAL	1.00
AVERAGED REPAIRS ON REPAIRABLE ITEYS ************************************	ID ORDERD DONE JRDERD		( NOTE: "ARDERO" INCL'IDES ANY REORDERS JF OISCONTINUED REPAIRS	RELIABILITY-TYPE FAILURES		FKLFT .160 CRANE .549 .100	R SUMMARY ******	٠	1.00 1.00 0.00 1.00 .71 0.00 1.00 .83 0.00
GED REPAIRS ************************************	ORDERD		( NOTE: "	BILITY-TYP		FKLFT CRAVE	END-JF-E4CGUATER 3U46ARY*******		TRUCK FKLFT CRANE
A V ERA * * * *	gi :	0 m		RELIA	ID	N m	END-3		HNM

1140.00

1200.00

1270.00

1320.00

1380.00

1020.00

1090.00

840.00

910.00

00.096

	5999. 111
	*6665
00000	2999. 11926941.
0000	ž
0000	1999.
1.00 2.00 1.00 98.67	END ■
1.00 7.00 1.00	SEEDS AT
• • • •	NUM 9ER
4 RADIO 5 ALARH 6 TELE 14 PARTS	((C PANDOM

*** CJ4PUTER TIME FOR ENCOUNTER ... 14.429 SECONDS

MNEMBNIC CONTROL CARDS *********

1. STOP

STOP READ BY INPUT ROUTINE. NORMAL STOP TAKEN STOP CALLED FROM INPUT ROUTINE

## APPENDIX E RUN #4 OUTPUT

LAST UPDATED: < 6 JUL 84 > 

2.084 TIMER. CPUTIM=8EGINNING = XXTINERXX

MNEMONIC CONTROL CARDS ********

DUMMY LINK CREATED DUMNY LINK CREATED CAN NOT FIND ASSET OR LINK NAMED HANDLDAD CAN NOT FIND ASSET OR LINK NAMED REPAIR ### WARNING ##### 2. LINKS #!#!# WARNING #!#!# 1. DEPLOY

HAS NO CORRESPONDINGLY NAMED ASSET - ASSUMING DUMMY LINK HAS NO CORPESPONDINGLY NAMED ASSET - ASSUMING DUMMY LINK *** WARMING *** LINK HANDLUAD

*** WARNING *** LINK REPAIR

SUBCHA JALLINK CO HAINS CO HAINS HEADIND RECTORS REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC REPLIC RE

ENCOUNTER NUMBER 1

	ł
FOURTH EXAMPLE FUN - CONVENTIVAL ATTACKS RUN ID # J7/13/34 16.15.55.	4
Ş	*
-	+
¥	,
7	÷
₹.	ŧ
in u	¥
= :	¥
> =	*
ã.	×
OH	¥
٠,	4
5?	4
33.5	×
いに	*
ě,	*
X	*
ui #	
IS	*
8 -	_
جَ جَ	_
u.u.	*

	JEVNT	•	<	<b>,</b> 0	-	.0	¢	à	a	0		~	0	0	0	0	0	G	c	0	<b>.</b> 10	a	Q	• 0	¢	<b>,</b>	· c	<b>,</b> c	<b>.</b>	9 0	•	<b>,</b>	3 0	<b>3</b> C	00	. 0	0	0				•			
	7		c	999		. 0	0	0	666	0	0	, ,	0	666	0	Ö	0	666		0	q	999		0	(2)	000		• <	) C	0		<b>•</b>	> <	000		0	d	0							
5999. 111	VOLLEY LENGTH	• • • • • • • • • • • • • • • • • • • •			00.0	•						00.00	) )																																
•6664	VOLLEY Angle	•			00.06							00.06																					•											C.O DEGREES <<<<<< DEGREES <<<<<	
•	2	•			00.0							0000																																DEGREE	,
3666	~ >	•			40.00							00.0																														180.0		) IS C.0 S 3.0 DEG	•
2933.					3							0.00																														12C.L		AXIS S ) I	
10	×				40.63							o																														60.09		ARGET X T X AXI	
1999.	0.PM				42							45																														10.0	•	ROW THE TARGET THE TARGET	
START =	WPW TYPE/ PICUPTIME	• • • • • • • • • • • • • • • • • • • •	IN I	,	. 1	10.00	90.09	120.00		130.00	23.9	. 1	10.30		70,00	120.27	130.30		250.00	300,00	366.00		430,00	486.00	540.3)		5,0,0,0	666.93	729.11.		700, 17	8451.73	0		650.05	1020.00	1030.00	1146.51				CVALUATION *		H ( MEASURED CCW FROM HEASINED CCW FROM THE	
SEEDS AT	34 C.	•	-	-1	-		•4	,-4	<b>1"</b> ]	-1	.,	-	r <del>-l</del>	~	-	-	1	-1	~	m	1	H	r-I	<u> </u>	-1	· •4	-	1 **	. • •	1,1	۱ ~	<b>4</b> s-	•	(	۱،-۱	н		e-l				201	:	GCTION (M	•
RANDOM NUMBER	EVENT	•	INITIAL	USER RCNST	CONV. LETH	RCNSTITUTE	RCHSTITHTE	RCNSTITUTE	USER RCNST	RCNSTITUTE	<b>RCHSTITUTE</b>	CONV. LETH	RCMSTITUTE	USER RCNST	RCNSTITUTE	RCHSTITUTE	<b>RCHSTITUTE</b>	USER RCNST	RCNSTITUTE	RCHSTITUTE	RCNSTITUTE	USER SCAST	RCNSTITUTE	ACNSTITUTE	RCNSTITUTE	USER RCNST	RCASTITUTE	RCNSTITUTE	ACHSTITUTE	JSER SCNST	PUNCTITIE	BUILLINGS	PONTITUE	USER RCNST	ACHISTITUTE	PCNSTITUTE	RCHSTITUTE	RCISTITUTE	VALUES	1011	CATIONS *	NAL PECONSTITUTION	ì	IRE DIR	
CCC RA	1 I'ME	•	39.6	65.3	1.00	11.00	61.60	121.JC	180.0C	190.33	240.00	303.00	310.00	360.09	370.00	423.66	483.63	540.00	553.13	00.000	950.009	720.60	733.00	78.00	840.06	. 00.006	03.076	950.60	023.33	0.00	067.000	14:50	10.00	260.00	270.02	32000	330.00	1447.66	V 410454 L 1877	Š	- 2	۳ از الا		> INCOMING F	: :
	EVENT	•		7																																			MINCEL	111111111	NO. OF RE	TIMES T		*******	

DETERMINISTIC LETHALITY. FRACTIONAL KILLS ARE ACCOUNTED

,		NAMES
		H08
	1020	INDEP. VOLLEY
	ERRORS	INDEP.
	DELIVERY PANGE	YSTLEY
	۵	INDEP
	YLD YLD(RAD)/	RADIUS
	YLD	LTITYP
		TYP
		z

UNIFORMLY

WAN TYP LTITYP RADIUS INDEP, VOLLEY INDEP, VOLLEY HOB NAMES  1 1 1 52, ( -50.v ) 160.v) ( -25.0 , 80.0) 0.0 WRHDICM, CONVENTIONAL	! DELIVERY ERROR .GT. D. MEANS MORMALLY DISTRIBUTEDLT. O. MEANS UI	**************************************	EXPND RT NG. NAMES		1.00 FRLFT		1.00 PADID, TALKY		1.00 TELE, TALKY	1.00 R/T OP, PERSONNEL		1.00 DRIVER, PERSONNEL				
INDEP. -50.0,	er IV se	2.00	GRNUL	33.1	1.00	1.00	2	66.1	2,50	5.00	1.33	00.1	30.1	1.63	5.5	
ï	÷	***	X/MN	1.00	1.03	1.00	1.00	00.1	2007							
ADIUS 52.		*******	ID VRS IVL CNTBU PRSFC-MX/MN GRHUL	1.00/	/00°=	1.00/	1.05/ 1.00	1.000	10001							
WPN TYP LTITYP RADIUS		* - *	NTBU													
LT 41		**************************************	IVL C	7	7	7	7	ï	7	0	0	7	ာ	2	0	•
17?		TT IA	ID VR5	-1	-1	ıч	Н	>	-1	'n	8	'n	Ŋ	٢	~	
Z . H		### ###	10 10 10	-	U1	m	4	S	9	~	8	٥	10	H	12	•
							1	<b>9</b> 1								

DEGRADATION BY JOPP AND TOXIC KILL CRITERIA TOXIC TRANSHISSION FACTORS

REPAIRABLE ITEM DATA

~				
LIN				
REPAIR LINK	e) *	<b>€</b>	£*	£ *
NCI TOCATION	10.000	10.000	10.000	10,000
REPAIR	10.000	16.000	10.000	10.000
ST3.DEV.	5.3.000	160.000	50.000	100.001
PENALTY MEAN TIME STO. DEV.	120.000	350 • 103	120.000	300,000
PENALTY	1.030	2002	1.000	1.900
DAMAGE	LIGHT 1.030 123,373 53,000 10,000 10,000 #3	MEDIUM	LIGHT	MEDIUM
	2 FKLFT	FKLFT	CRANE	CRANE
10	~	2	m	m

## LIABILITY-TYPE FAILURES

MED.	1000
LITE	800 800
MTBTF	2 FKLFT 720.000 .800 .100
ID	2 FKLFT 3 CRANF

**************************************	•		;	:	:	;			
NK NAME	nor To	INLIIK	XYU II	46 X EFF(*)	z z E	HIN EFF(%)	MAX	ASSOCIATED Link	DGR SET
•••••	•••••••	• • • • • • • • • • • • • • • • • • • •	:::::::::::::::::::::::::::::::::::::::				• • • • • • • • •		••••
1 HANDLOAD	,	-5.06	5.50	65	1.00	O	UNLMTD	NONE	0
2 REPAIA	9	-2.00	2.90	100	30.0	0	UNLATO	NONE	0
3 ORIVER	^	1.00	00.0	200	00.0	ပ	1.00	TRUCK	0
RADI7	4	1.00	7.00	00:1	) (r	0	UNLATD	NONE	
i TELE	٥	2.00	1.30	160	٠ ,	o	UNLATO	NONE	
S TRUCK	<b>~</b> 1	1.63	٠. ئان	100	00.0	b	UNLMTD	NONE	
CRANE DP	۲۲ د ۲	00°T	2.00	<u>ુ</u>	30.0	0	1.00	CRANE	0
1 PIGGER	13	) - (-	00.4	COT	0.00	Ö	UNLATO	NONE	0
7 R/T 1)P	*	1.30	1.00	169	0.00	O	1.00	NONE	0
) FKLFT	61	1.00	1.00	100	0.00	ပ	JULATO	NONE	
CRANE	M	73.	00.1	100	20.0	O	UNLMTD	BNON	
: FKLFT OP	디디	1.00	1.30	16.	0.00	0	1.30	FKLFT	0
1 LOADMSTR	æ	200.4	99.5	100	00.0	75	2.50	NON	•
PARTS	77	100.00	1.30	100	0.00	ပ	UNLATO	NON	< EXPENDIBLE >
NOT IN LINK		8.00							

KEY: SUBST. TIME/SUBST. EFFECTIVENESS/SUBST. DRDER-RFAD-IN

	\ . 4Ah	. HANDLO . REPATE	AIR . DRIU	. DRIVER . RADIO	0101	. TELE		TRUCK	. TRUCK . CRANE . OP	• RIGGER • R/T UP • FKLFT	. 87	90	FKLFT	. CRANE	FKLFT OP	LFT
ASSET	<u>;</u> -	•	. 2	• •	4		'n	•		ω •	•	•	10		•	2,1
1 TRUCK	^	 		 				Ξ.			-			} 	-	
	^										, <del></del> -		x		•	
	^													I	•	
4 RADIO	^				r											
	^									٠.		_			••	
6 TSLE	^					<b>=</b>		•••		••				_	••	
7 R/T UP	> 5/1	1.7/21	115/0	15/21						1 5/.60/	-	_			1 5/	5/ •20/31
8 LOADMSTR	. 5/1	> 5/1.0/4:15/1.0/1:15/.95/1:	, • / 3T; TZ / o	17/58					1 5/1.6/3	5/1.6/3! 5/.60/1!20/1.0/1!	112077	.0/11			1 5/	5/11.0/21
	× 5/1	1.0/1!	T,					`		1 5/ 60/	1:15/	80/21			. 26	5/.20/31
O MEN	× 5/1	1.7/5.1	115/0	37/11		•••				1 5/.60/	1115/	86/21			15 :	5/.20/31
LI FKLFT OP	. 5/1	1/01:1/01	.0/3115/0	35/21					110/.36/11	1 5/ 60/	1115/	80/21			-	<b></b>
	75 ^	1,9/1:115/1	. 3/2:15/.	37/11					J;	1 5/.60/1115/.80/28	1115/	30/21			110/	10/.90/11
L3 RIGGER	7.6 ×	1.1/1.1	1157.8	17/11		٠.			1 5/050/2		115/	115/.80/21			1 5/	5/020/31
14 PARTS	^		••								••					
	~ _	VICTO SECTOR OF A	٠ ۲	•												

182

LNKFG

56	π <del>-</del>						#2 ( .25)
14	T.						•
13	±		w			PAR	.75)
		LINKS IN EACH SUBCHAIN ************************************	5 F 7	N EACH JRLIAK	% <del></del>	LINKS ******	Ique +2
SSET	TRUCK FKLFT CRANE RADIO ALARH TELE TELE LOADNSTR DRIVER MEN FKLFT OP CKANE OP RIGGER PARTS	IN EACH S	212	# ‡ "	# # 4	(CP)	ADING TECHNIQUE
*	1111129875 44 8 8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	LINKS IN	# * # # 0 00	BRANCHES +++++++	+ + + + + + + + + + + + + + + + + + + +	<b>E</b> #	LOADING

CHAINS

SEGMENTS IN EACH CHAIN

ILDADING TECHNIQUE TRUCK LDADMSTR

R/T 0P

SEG 1

++ ++ TELE:+	
11 11 ++++++++++++++++++++++++++++++++	

	***** !! CRANE	### C& AN E	* 1 6 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	#
**************************************	+++++++ :: 	01 00 01 01 01 01 01 01 01		
+	***** ***** *****	:: 14 *** ***	40 #	

11 11 10 A035 TR

DEPLOYMENT	Y MEN.	<b>h- 4</b>										
•	01	ASSET	LAK	XTAR	YTAP	HOAMNY	KCAT	NKCAT TKCAT	TKCAT	PSTR	NUCVR	MOPP
	•	•••••	•	•		•		•		•		:
.⊣	1~	2/1 JP	0	n 4	0.0	1.00	*	-	2	-	-	C
7	*	RADIO	4	0.0	C	1.30	-			-	~	ပ
m	iG	AL AF.M	25	0.0	0.0	1.00	-		H		-	o
4	0	TELE	'n	ر د	ن	1.00	H	-	-	-	-	0
'n	1	ZIII	\$5	36.6	C. 2	2.00	H	٦	-	-	-1	-1
9	10	NU.	95	3°C	0 • 1	2.60		-	-4	-	н	н
~	. <del>†</del>	PARTS	7	7.5.0	0.01	100.00	-	-		H	<b>-</b>	O
60	ت	REPAIP	~1	10.0	10.0	-2.30	-1	-	-	-	-	0
σ	1	FKLFT OP	24	26.3	50.0	1.00	-	-	m	-	-1	0
70	o	HANDLOAD	rł	20.0	50.00	-5.00	-1	-	4	-	-4	0
=	-	TRUCK	43	20.0	53.3	.60	p=1	~1	٦		-1	Ü
12	0	9 ORIVER	٣	20.0	53.0	9	н	<b>,-4</b>	m	-	~	c
۲3	~	FKLFT	71	20.02	50.0	1.00	H	-	<u>ہ</u>	-	-	0
14	0	DRIVER	m	60.09	60.0	.40	-	-	m	-	-	0
15	13	RIGGEK	ന	64.)	60.09	1.90	н	,- <b>1</b>	4	-	-	0
91	m	CRANE	. <b>1</b>	60.0	60.0	1.00	۲.	<b>-</b> -4	н	~	-4	0
7.7	12	CRANE OP	^	90.39	7:09	1.00	-1	-	m	<b>،</b> -	-	0
18	-	TRUCK	Đ	50.0	60.0	64.	7	-	-1	~	7	O
19	S	AL ARK	95	20.0	30.3	1.00	m	-		~	~4	0
20	ဆ	LOADMSTR	m +	20.0	37.0	1.00	H	-1	'n	~	н	0
21	70	HEL	95	26.0	33.0	2.00	-	-	7	<b>,-</b> 1		-

1132 YY AA 1132 YY AA 09 A4 A4 A4 A4 A4 A4 A4 A4 A4 A4 A4 A4 A4	501 201
77 27 88 82 27 27 89	

****	
AND INPUT CHECKS	
INPUT	3.4851
AND	m
INPUT	
FINISHED INPUT	CPUTIN
13 ~~~~~	<b>EZIIYERZZ</b>

	•		• .			000			0.0	•		0.0	
•		•				•							
*		*			<b>*</b> * * * * * * * * * * * * * * * * * *	55.8,			50.09	•		88.9,	
5999.		5999.			5999•	\$			2,			1.8,	
in.		Kn.			<b>L</b>	14.69			15.2,			ij	
٠,		•			•	•			<u>.</u>			~ •	
46664		6664			6665	¥62	2	0	AGZ	00	00	Y6Z	8 .
						0.00 0.00 0.00 0.00 0.00	0000 0.000	.300c 0.0000 30	0.6 )	0000-0	0000-3	0.0	.3000 0.0000 15
3999•	¥	205.	ÿÿ		.017.	00.1	996 •30	000.	он •	C.00000 .	.300C C	ó	.15
69	61.0C 5259C	14155	30°006	52590	41601	3""" 3000	0°3 (0	2	40.03 50.01 =	<u> </u>	2	40.64	â
•	61	2999. 2114155205.	006	52	2995. 1941601017	F) (A) (A)	3005	.0000		.3600 50.0)	0000000		0.0000
2999.	TIME OP )	562	TIME		562	40.03 20.03 20.03 20.03	# 00 000 00 000	60.09	40.33 20.05	23.0,	ري. 09 ون ون	40.04	23.62
	E AT ( 111		AT AT	11		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	(TE)	, ( 60.	~~ ~ • ~	(TE)	. (ET)	<u>.</u>	(TE)
1999.	13 YAR A LITE FAILURE AT TIME .139. TOP OF AEMORY ( ITOP )	.906.	FAILURE FAILURE	MEMORY ( ITOP )	1139.	06Z 9 11	S (DEAD,MED.,LITE) AT TGTPT 13 (		1	S (DEAD,MED.,LITE) AT TGTPT 13 (	(DEAD, MED., LITE) TSTOT 16 (		S (DE4D,MED.,LITE) AT TGTPT 13 (
~	7.F F./ 0F A8	63797906•	LITE F	OF NS	744123188.	2.30. TGTPT TGTPT	AD, ME TPT	(DČAD, Me i tgtpt	1.00. TGTPT	AD, ME TPT	AD, KE Toţ	1.00. 062	40, ME T P T
	A LITE TOP OF		44	TOP OF		AT TG AT TG AT TG	S (DE AT TG	S (DCAD)	AT TG	S (DE AT TG	S (DEAD). AT TSTOT	Ħ	S (DE4D, P AT TGTPT
Same	13 1AB , 4.139.	SEEDS	13 4AD 16 HAD	4.491.	SEEDS	1000 1000 1000 1000 1000 1000 1000 100			71.47 7K*#			THI	
	4			4			FOLLOWS. PK	FJLLOYS. PK = .3J PK*#	. AT TIME	FOLLOWS. PK**	FJLLOWS. PK	1. AT TING	FJLLOYS. PK
RND. 40.	• PT•	RND. NO.	PT.	r E	RMD. VO.	4 # # # U.C. U.			 	u,			_ •
e.	2 at tGt. 1. CPÜTIH	5, 8,	AT TST. AT TST.	2. CPHTIN	ų. K	WPN 40. 42. PK 6. PK 3. PK	E ITEN FOI	E 17E	PN √0	5 rre	2 I T	PH 149	E 17E
	α N .∓		9 m	2.	n	LUK LUK LUK	<u>.</u>	REPAISABLE ITEM 3 IN LAK 11, PK	1 ( 1) • WPN 40 •	<pre>&lt;&gt; REPAIPABLE ITEM 2 IN LNK IA. PK</pre>	S REPAIRABLE ITEM FJI 3 IN L'1K IL. PKF=	1). JPH NG.	C> REPAIRABLE ITEM FBI 2 IN LAK IA. PKF=
ATION	i ID	AT I GN	FROM ID	LIC.	AT ION	_	REPAIRA: Z IN LHK	ZEBA 3 IN	L IN	REPA 2 IN	RZPA 3 1N	J	REPA 2 IN
PLIC	.CGO UNIT FROM ID FINISHED REPLIC.	PLIC	2 K T	FINISHED REPLIC.	PLIC			\$			<b>\$</b>	rl -	0
NG R.	UNIT	NG RE	LIND	ISAE	35 35	## IC ## IC ## IC	** ID:	*# ID:	LLEY!	)I **	3I **	וונאו	); *
BEGINNING REPLICATION	7	BESIMMING REPLICATION	1.000 UNIT		BEGINJING REPLICATION	: EMPL, # (YOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	***CASUALTY***	***CASUALTY**	** EMPL. # (VOLLEY) ***CASUALTY*** ID:	***CASUALTY*** ID:	***CASUALTY*** ID:	E42L. # (VJLLEY)	***CASUALTY*** ID:
	>>> I	E A	• •	ratinerat		PL.	rc.asu,	CASU,	to L.	FC ASU	KÇ A S U.	12 F	KC ASU,
* * * *	*** ##	<b>***</b>	<b>^ ^</b>	1122	<b>**</b>	** EHPL. ***CASU ***CASU ***CASU	14 A	*	m ; #	*	*	ม *	*
				197									

*	EMPL. 1	** EMPL. # (VOLLEY)		Н	1).	1). WPN 49. 1. AT TIME	- <del>i</del>	AT	TIME	-i	.03.	1.07. DGZ = (		6.3	40.03 40.03		0.0	<b>A</b> 62	•	48.6-		73.,69	0.0
*	**CASU	***CASUALTY*** ID:		A G D A	irar l Luk	<> REPAIRABLE ITEM FOLLOWS. PK 2 IN LMK 13. PKF* .3. PK*#	H FOL	.Lays		(064 17 TGT	10, MEI	S (DEAD,MED,,LITE) AT TGTPT 13 ( 2	je) = 20 ₀0,1	٥,	6.0000 .3000 50.0)10	.3000 °	0.0000	8					
*	EMPL.	EMPL. # (VOLLEY)		J	1) . 4	1 ( 1). WP4 30. 1. AT TEME		TA .	3811	-;	.69	1.69. DGZ = (		40.03	40.03	•	0.0	<b>462</b>		-19.2,		45.0,	0.0
*	**CAS11/	***CASUALTY*** In:		REPA	IRABL Lak	<> REPAIRABLE ITEM FILLOWS. PK 2 IN L1K 10. PKF* .33 PK*#	M F)I	.L.9WS	• PK S	(02.4 17 TG1	ND, MEI	S (DEAD, MED, LITE) * AT TGTPT 13 ( 26.0	E) .	ડં્	C.000C .300C .	3000.	000002	0					
*	EMP L. 1	** EMPL. # (VOLLEY)		J	3) · 4	1 ( 1). 4PN NO. 1. AT TIME	 	14	24.IT	-i	00.	<b>290</b>	<b>J</b>	0.0	1.30. DGZ = ( 40.0, 40.0,		0.0	AGZ		-12.1,		40.77	0.0
*	**CASU	***CASUALTY*** ID:		REPA	IRAB L L'IK	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK 2 IN L'NK 1), PKF* .3J PK*#</pre>	H F01 KF*	.1048		100.4 17 TST	10, MEI	0.5LII	E) =	S (DCAD,MED,LITE) * C,JC9C AT TSTPT 12 ( 20,0, 50,0)	\$0.00° 3000° 0.0000 50.0000	3000	C.00	8					
*	EMPL. 1	** EMPL. # (VOLLEY)			# · CT	1). WOR NO. I. AT TIME	.i	TA.	TIAC	-i	.00	1.00. DGZ = (		40.03	40.04	•	0.0	<b>A62</b>	H	-23.0,		62.0,	0.0
*	**CASU	***CASUALTY*** ID:		REPA	IPA3 L Lak	10. P	KF* F01	.33	C> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LI' Z IN LAK LO. PKF* .3) PK*# AT TGTPT 13 (	(DE4	ID, MEI	S (DEAD, MED., LITE) * AT TGTPT 13 ( 20.0.	E) =	o,	,3000 ,3000 C	.3000 .	0000•5	8					,
*	EMP L.	** EMPL. # (VOLLEY)		J	1). +	1 ( 1). 4PN NO. 1. AT TIYE	). 1.	TA ,	1140	Ä	. 69	DG Z =	7	0.00	1.00.062 = ( 40.0, 40.0,		0.0	AGZ - (		-20.0,		, (4.44	0.0
*	**CASU	***CASUALTY*** ID:		REPA	IRA3 L LNK	.e 17E	N FOL	.1045	<pre>&lt;&gt; REPAIRABLE ITEM FOLLO4S. PK S (0E4D.MED.LITE) * 2 IN LNK 1c. PKF* .30 PK*# AT TGTPT 13 ( 20.0)</pre>	(0E4	N, YE	0.,LIT	E) = 20.	ິບັ	.0000 .3000 50.0) = .02	.3000 °	0000.02	8					
*	EMPL. 1	EMPL. # (VALLEY)		J	7 . (7	1 ( 1). 4PN NO. 1. AT TIME	.;	ΑŢ	TIME	ri -i	.69.	1.55. 56Z = (		40.04	40.03	•	0.0	AGZ		-12.8,		67.6,	0.0
189	**CASU	***CASUALTY*** ID:		REPA IN	IRAB L Lyk	E 178	.¥. 901 KF=	.L.345	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (OEAD,MED.,LITE) = 2 IN LNK lc. PKF= .3) PK*# AT TGTPT l3 ( 20.0)</pre>	(0EA	10, MEI	0., LII	E) = 20.	o ,	0.0006 .3006 C	.3306	.02 .02	0					
*	EMPL. '	** EMPL. # (VOLLEY) ***CASUALTY*** ID:		J H	1), H	PH NO	KF	. AT	1 ( 1), WPH NO. 1. AT TIME 1.00. DGZ = ( 40.0) 1 IM L4K 6. PKF* .30 PK*# AT TGTPT 11 ( 2C.0)	11. 17. TG1	.00	) [[	20.	60.00	50.03		0000	• 29¥	•	7.9,		40.04	0.0
*	**CASU	***CASUALTY*** ID:		AEDA	IRAB L Luk	ë 11≘ 10• P	# F01 KF*	.LOWS	<> REPAIRABLE ITEM FOLLOWS, PK S (DEAD, MED., LITE) 2 IN LUK 10. PKF , 33 PK*# AI TGTPI 13 (	( OE4	10, ME	0. J. IT	E) = 26.	26.03 50.0)	50.00 -3000 0.0000 50.0) = .01	3000	0.00	2					
*	EMPL. 1	** EMPL. * (VOLLEY)		J	H	1 ( 1). WPN MO. 1. AT TIME	بر م	T A T	THI	Ä	.00	. Z90	7	60.0	1.00. 062 = ( 46.5, 40.0,	•	0.0	<b>A</b> 62		-7.9,		59.42	0.0
*	**CASU	***CASUALTY*** ID:		REPA	1348 L Lak	C> REPAIRABLE ITEM FOLLBUS, PK 2 IN LNK 10. PKF 31. PK*#	M FOL	.L.OWS	* * * * * * * * * * * * * * * * * * *	, (DEA	ID, MEI	S (DEAD, MED., LITE) = AT TGTPT 13 ( 20.6)	E) = 23.	•	0.0000 .3000 C.0000 50.0)01	3000	C.00	0					
* *	EMPL. /	** EMPL. # (VOLLEY) ***CASUALTY*** ID:		) EH	1). ¥	o, Nd	KF- 1.	. AT	1 ( 1), 4PN NO, 1, AT TIMC 1,00, DGZ = ( 1 IH LNK 6, PKF= ,30 PK*# AT TGIPT 11 (	11 161		DG Z = 11 (	20	40.03	40°05		0.00	<b>4</b> 62		·	4 49.	44.2,	0.0
* ^ ^	**CASU	<pre>&lt;&gt; &lt;= PA ***CASUALTY*** ID:</pre>	6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	A SEPA	IRABL Luk 2 4 2 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	и F31 КР РГ	.3J	C> REPAIRABLE ITEM FOLLOAS, PK S (DEAD, MED., LITE) = 2 IN LWK 13, PKF = 33 PK** AT TOTPT 13 ( 23.0), RDM ID 2 AT TGT. PT. 13 AAD A LITE FAILURE AT TIME RDM ID 2 AT TGT. PT. 13 AAD A LITE FAILURE AT TIME	(0EA NT TGT A LIT	PT PT F SA	0.,LIT 13 ( ILURE ILURE	E) = 23. AT TI AT TI	S S W W	55.63 *3.00 55.63 * •31 640.00 **	.3u00 0 .31 	0.000	0					
722	zztimerzz	FINISHED REOLIC.	10 3% G	. 10.	m m	3. CPHII	* X	4	4.353. TOP OF MENORY ( ITOP ) .	TOP 0	JF #5≀	40 RY (	тог	•	52590								

AND THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPER

0.0

65.9,

-3.3,

0.0 ) AGZ . (

0.0		0.0		0.0			. 0		0.0			0.0	•	0.0		0.0			0.0	
98.2,		45.49		40.06			81.4,		60.8			106.70		80.9,		92.1,	•		62.3,	
37.4,		70.8,		34.05			-10.8,		64.43			50.3,		66.43		30.6,				
** EMPL. # (VJLLEY) 1 ( 1). 4PN HO. 1. AT TIME 1.60. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	<>> REPAIRAB UaltY**¢ IO: S IN LVK	** EMPL. # (VOLLEY) 1 ( 1). WPN 40. 1. AT TIME 1.03. DGZ * ( 40.0, 40.0, 5.0 ) AGZ * (	<pre>&lt;*#CASUALTY*** ID: 3 IN LNK 11. PKF* .30 PK*# AT 1GTPT 16 ( 60.0, 60.0) = .21</pre>	** EMPL. * (VOLLEY) 1 ( 1). WPH NO. 1. AT TINE 1.25. DGZ = ( 40.6, 40.0, 0.0) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOHS.PK S (DEAD.MED.LITE) # 0.0000 0.0000 0.0000 ***CASUALTY*** ID: 2 IN LNK LU.PKF# 330 PK*# AT TGTPT 13 ( 20.0) 50.0) # .21</pre>	<pre></pre>	** EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.6, 0.0) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOHS. PK S (DEAD,MED.N.ITE) # 0.0000 .3000 C.6000 ***CASUALTY*** ID: ? IN LWK 10. PKF# AT TGTPT 13 : 20.0, 50.0) # .15</pre>	** EMPL. # :VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	***CASUALTY*** ID: 2 IN LNK 10° PKF = "3" PK*# AT 1GTPT 13 ( 20°C) 50.0) = "10  ***CASUALTY*** ID: 9 IN LNK 3° PKF = "3" PK*# AT 1GTPT 14 ( 50°0) 50.0) = "40  ***CASUALTY*** ID: 9 IN LNK 3° PKF = 1.00 PK** AT 1GTPT 14 ( 50°0) 60.0) = "40  ***CASUALTY*** ID: 13 IN JNK 9, PKF = 1.00 PK** AT 1GTPT 15 ( 0.00, 60.0) = 1.00  ***CASUALTY*** ID: 3 AT ( 60°0, 707AL JUNK FURTHER DAMAGED = "197	<pre></pre>	** EMPL. # (VOLLEY) 1 ( 1), UPN NG. 1. AT TIME 1.39. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	<pre>&lt;&gt; PEPAIRABL: ITEM FOLLOWS, PK S (DEAD_MED.,LITE) = 0.0000 .3000 0.0000</pre>	## EMPL. # (VOLLEY) 1 ( 1). APN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. "K S (DEAD.#LDT) = .3000 6.0000 C.6000 ***CASUALTY*** ID: 3 IN LM 11. PKF= .30 PK*# AT TGTPT 16 ( 66.0, 60.0) = .05 ***CASUALTY*** ID: 1 IN LM 0. PKF= .30 PK*# AT TGTPT 13 ( 60.0, 60.0) = .08</pre>	** EMPL. # (VOLLEY) 1 ( 1). JPN NO. 1. AT TIME 1.09. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	<pre>&lt;&gt; READINED.   C.   C.   C.   C.   C.   C.   C.  </pre>	<pre>***CASUALTY*** ID: 3 IN LMK 11. PKF* 33) PK*# AT T3TPT 16 ( 60.6.) 60.0) = .04 ***CASUALTY*** ID: 5 IN LMK 12. PKF* .33) PK*# AT T3TPT 16 ( 60.6.) 60.0) = .04 ***CASUALTY*** ID: 5 IN LMK 95. PKF* .33) PK** AT TGTPT 19 ( 20.6.) 80.0) = .21</pre>	** EMPL. * (VOLLEY) 1 ( 1). 4PM HG. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( ***CASUALTY*** ID: 1 IM LMK 5. PKF= .3J PK** AT TGTPT 11 ( 20.0, 50.0) = .18	<> REPAIRABLE ITEM FOLLO4S, PK S (DEAD,MEO.,LITE) = C.,1640 C., 2000 ***CASUALTY*** ID: 2 I'4 LNK 10. PKF* .30 PK** AT TGTPT 13 ( 20.0, 5).c) = .05
											189									

** EMPL. # (VOLLEY) 1 ( 1). 4PN VD. 1. AT TIME 1.00. DGZ # ( 40.0, 40.0, 0.0 ) AGZ # ( 60.9	60.09	101.7,	0.0
<pre></pre>			
** EMPL. # (VOLLEY) 1 ( 1). 4PN MO. 1. AT TIME 1.05. 062 * ( 40.0). 40.0, 0.0.) AGZ = ( -22.7)	-22.7,	58.7,	0.0
<pre></pre>			
.0° 0.0 AGZ = ( -7.5	-7.5,	74.9,	0.0
<pre></pre>			
** EMPL。	18.7,	73.3,	0.0
<pre></pre>		•	
***CASUALTY*** ID: 5 IN LNK 12. PKF" .3G PK*# AT TGFPT 16 ( 6C.0) 60.00 0.6000 0.6000 ***CASUALTY*** ID: 5 IN LNK 12. PKF" .3G PK*# AT TGFPT 16 ( 6C.0) 60.0) " .02 ***CASUALTY*** ID: 5 IN LNK 95. PKF" .33 PK*# AT TGFPT 19 ( 20.0) 80.0) " .15 ***CASUALTY*** ID: 8 IN LNK 13. PKF" 1.03 PK*# AT TGFPT 20 ( 2C.0) 80.0) " 1.00 ****CASUALTY*** ID: 10 IN LNK 95. PKF" 1.03 PK*# AT TGFPT 21 ( 2C.0) 80.0) " 2.00		,	•
** EMPL. # (VOLLEY) 1 ( 1). YPM NO. 1. AT TIMS 1.0C. DGZ = ( 4C.0, 40.0, 0.0) AGZ = ( 28.3,	•	74.4,	0.0
<pre></pre>			,
<pre>**#CASUALTY*** ID: 3 IN LHK 11. PKF= .30 PK*# AT TG?PT 16 ( 60.0) 60.0) = .01 ***CASUALTY*** ID: 5 IN LHK 11. PKF= .30 PK*# AT TG?PT 16 ( 60.0) = .01 ***CASUALTY*** ID: 5 IN LHK 95. PKF= .30 PK*# AT TGTPT 19 ( 20.0) 80.0) = .1C</pre>			
** EMPL. * (VOLLEY) 1 ( 1). 'IPN NO. 1. AT TIME 1.60. DGZ = ( 45.6, 45.0, 0.0) AGZ = ( 48.7,	48.7,	87.7,	0.0
<pre>&lt;**CASUALTY*** IO: 2 IN LNK 10. PKF= .33 PK*# AT TGTPT 13 ( 20.00, 50.0) = .01</pre>			
<pre>&lt;&gt; REPAIKABLE ITEN FOLL ***CASUALT **** ID: 3 IN LYK 11, PKF* ,</pre>			•
** EMPL. # (VJLLEY) 1 ( 1). WPN NJ. 1. AT TIME 1.00. BGZ * ( 43.0, 40.0, 0.0) AGZ * ( 1.7)	1.7,	74.6,	( ).0
<pre></pre>			
** EMPL. * (VOLLEY) 1 ( 1). VPH ND. 1. AT TIME 1.60. DGZ = ( 46.0, 40.0, 0.0) TO. ) AGZ = ( 22.3)  ***CASUALTY*** ID: 11 IN LHK 12. PKF= 1.0.) PK*# AT TGTPT 9 ( 20.0, 50.0) = 1.00  ***CASUALTY*** ID: 1 IN LHK 6. PKF= .30 PK*# AT TGTPT 11 ( 26.0, 50.0) = .09  ***CASUALTY*** ID: 9 IN LHK 3. PKF= 1.0.9 PK*# AT TGTPT 12 ( 20.0, 50.0) = .60  ***CASUALTY*** ID: 2 AT ( 20.0, 50.0). TOTAL JUNK FURTHER DAMAGED = .296	•		. 0.0
<> REPAIRABLE IFFH FILL™HS. PK S (DEAD, MED., LITE) = .3000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000			
<pre></pre>			
** EHPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.CM. DGZ = ( 46.6, 40.0, 0.0) AGZ = ( 57.7)	57.73	60.3,	0.0

	° ° °		0.0	0.00		• ·			0.0
	89.8	67.59	60.29	81.9.	< ** ** *	-14.49	<b>*</b>		96.49
	26.0,	26.7,	41.0,	6.39	6000	3 • 6 8	3999	56.79	46.64
<pre>***CASUALTY*** ID: 2 IM LMK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.C, 50.0) = .00  ***CASUALTY*** ID: 2 IM LMK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.C, 50.0) = .00  **JUNK CAS.* ID: 3 AT ( 60.0, 00.0). TOTAL JUNK FURTHER DAMAGED = .476  ***CASUALTY*** ID: 3 IN LMK 11. PKF= 1.00 PK*# AT TGTPT 16 ( 60.0, 60.0) = .01  ***CASUALTY*** ID: 1 IN LMK 5. PKF= 1.00 PK*# AT TGTPT 18 ( 60.0, 60.0) = .20</pre>	** EMPL. # (VOLLEY) 1 ( 1). YPN NJ. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 60.0) AGZ = ( **CASUALTY*** ID: 2 IN LWK 1J. PKF = .3) PK*# AT TGTPT 13 ( 20.0, 50.0) = .00 ***CASUALTY*** ID: 5 IN LWK 75. PKF = .3) PK*# AT TGTPT 15 ( 20.0, 80.0) = .05 ***CASUALTY*** ID: 5 IN LWK 95. PKF = .3) PK** AT TGTPT 19 ( 20.0, 80.0) = .05	** EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 3.00. 562 = ( 40.0, 40.0, 0.0) AGZ = ( ***CASUALTY*** ID: 1 IV LNY 6. PKF* .30 PK*# AT TGTPT 11 ( 20.6, 50.0) = .06  ***CASUALTY*** ID: 5 IN LNK 95. PKF* .30 PK*# AT TGTPT 19 ( 20.0, 80.0) = .04  ** EMPL. ** EMPL. ** ID: 5 IN LNK 95. PKF* .30 PK*# AT TGTPT 19 ( 20.0, 60.0) = .04  ** EMPL. *** EMPL. ** ID: 6 IN LNK 95. PKF* .30 PK*# AT TGTPT 19 ( 20.0, 60.0) = .04  ** EMPL. ** EMPL. ** ID: 6 IN LNK 95. PKF* .30 PK*# AT TGTPT 10 0.00 PGZ = ( 40.0)	1 ( 1), 4PH NO. 1. AT TIME 1.00. DGZ = ( 4C.0, 40.C, 1 IN LHK 6. PKF= .30 PK*# AT TGTPT 11 ( 20.C, 50.0) =	** EMPL, # (VJLLEY) l ( 1), WPN NO, l. AT TIME l.30. DGZ = ( 46.0, 40.0, 0.0) AGZ = ( ***CASUALTY**** ID: 5 IN LVK 95. PKF= .30 PK*# AT TGTPT l9 ( 20.0, 80.0) = .02 ***TINGRIX FINISHED REPLIC, 4. CPUTIM= 5.156. TOP OF MEMORY ( ITOP ) = 5259C	<ul><li>сими&gt; вестрили дерцісатіли 5. RND. ND. SEEDS - 655353686.</li><li>2995. 126599714.</li><li>4999.</li></ul>	** EMPL, # (VDLLEY) 1 ( 1), APN ND, 1, AT TIME 1,00, DGZ = ( 4C.C, 40.C, 60.0) AGZ = ( ** ** ** ** ** ** ** ** ** ** ** ** *	<***> BEGINNING REPLICATION 6. RND. NO. SCEDS = 316254356. 18653139C. 997761745. 4999.	** EMPL, # (VOLLEY) 1 ( 1). WPN MG, 1. AT TIME 1.0C. DGZ = ( 46.0; 40.C, 0.0) AGZ = ( ***CASJALTY*** ID: 3 IN LdK 11. PKF 3) PK** AT TGTPT 16 ( 60.0; 65.0) = .30	** EMPL。 # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.50. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( ** EMPL.** IO ** SEPARABLE ITEM FOLLOWS. PK S (DEAD, MED.*) LITE) = 0.0000 .3000 G.0000 *** CASUALTY*** ID: 3 IN LMK 11. PKF= .30 PK*# AT TOTPI 16 ( 60.0, 60.0) = .21
				191					

*** \$\$PL** (VOLLEY) 1 ( 1)** PPH 90. 1.4 T THX  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  *** \$PPL** (VOLLEY) 1 ( 1)** PPH 30. 1.4 T THX  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  *** \$PPL** (VOLLEY) 1 ( 1)** PPH 30. 1.4 T THX  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  *** \$PPL** (VOLLEY) 1 ( 1)** PPH 30. 1.4 T THX  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  *** \$PPL** (VOLLEY) 1 ( 1)** PPH 30. 1.4 T THX  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  *** \$PPL** (VOLLEY) 1 ( 1)** PPH 30. 1.4 T THX  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0000  ***CANALIVE** 10: ***PLANALE THE PALLOGY FR 5 (100.) 000. 3100 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0	~ · · · · · · · · · · · · · · · · · · ·	0 0	0.00	0.0	0.00	0 0
1   1.3	96.3,	106.5, 99.1,	97.69	81.1,	84.7.	104.3, 87.8,	102.5,
1 ( 1), 4PH 400. 1, AT TING	61.1,	84.3,	17.77	CO CO	1.7,	47.73 90.33	30.1,
	##CASUALTY#** ID: 3 IN LNK 11: PKF* .3) PK*# AT TINE 1.00. DGZ = ( 4C.G, 40.G, 0.C) AGZ =   **CASUALTY#** ID: 3 IN LNK 11: PKF* .3) PK*# AT TGTPT 16 ( 60.0), 60.0) = .15  EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TINE 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ *  **CASUALTY** ID: 3 IN LNK 11: PKF* .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .10	1 ( 1), 4PH NO. 1. AT TIME 1.6C. D32 = ( 46.0, 40.0, 30.0) AGZ ** RFPAIRABLE ITEM FOLLO4S. PK S (DEAD, MED., LITE) = C.3000 .3000 6.6000 : 3 IM LNK 11. PKF* .33 PK*# AT TGTPT 16 ( 60.0, 60.0) = .07 1 ( 1), WPN NO. 2. AT TIME 1.C3. DGZ = ( 40.0, 40.0, 0.0) AGZ ** REPAIRABLT ITEM FULLOWS. PK S (DEAD, MED., LITE) = C.0000 .3000 6.0000 : 3 IN LNK 11. PKF* .35 PK*# AT TGTPT 16 ( 60.0, 60.0) = .35	EMPL. # (VÖLLEY) 2 ( 2). 4PN NO. 1. AT TIME 305.65. DGZ = ( 0.6, 0.6, 0.0) AGZ = ( 0.6, 0.6, 0.6) AGZ = ( 0.6, 0.6) AGZ = ( 0.0) AGZ =	<pre>&lt;&gt; REPAIMABLE ITEM FOLLOWS. PK S (DEAD, HED., LITE) = 0.00000 .3000 0.000  1  3 IN LYK li. PKF= .3.) PK*# AT TGTPT</pre>	<pre> &lt;&gt; REPAIRABLE ITEM FOLLOWS, PK S (DEAD, HED, LITE) = .3000 0.0000 C.000 : 3 IN Lik 11. PKF = .3 PK*# AT TGTPT 16 ( 6C.C, 60.0) = .09 : 1 IN Lik 6. PKF = .3.9 FK*# AT TGTPT 16 ( 60.0, 60.0) = .12  2 ( 2). 4PN NO. 1. AT TIME 300.CO. DGZ = ( 5.0, 0.0) = .12  &lt;&gt; REPAIRABLE ITEM FOLLOWS, PK S (DEAD, HED, LITE) = C.0000 .3000 0.000 : 2 IN Lik 1C. PKF = .3.9 PK*# AT TGTPT 13 ( 20.0, 50.0) = .21 : 5 IN LIK 95. PKF = .3.0 PK*# AT TGTPT 19 ( 20.0, 50.0) = .21 </pre>	EMPL. # (VOLLEY) 2 ( 2). JPN HG. 1. 4T TIME 300.03. DGZ = ( 0.0). 0.6J. 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) ( 0.0) (	EMPL. # (VOLLEY) 2 ( 2). 4PN NO. 1. AT TIME 300.00.005 GCZ = ( 0.0. 0.6. 0.6. 0.0.) AGZ = (VOLLEY) 2 ( 2). 4PN NO. 1. AT TIME 300.005. LITE) = 0.0000 G.CO00 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000 .3000

*	***CASUALTY*** ID: **JUNK CAS	<pre>&lt;&gt; <paicabl_item (="" (dead,="" *="" .009<="" .15="" .3.="" .3000="" 10.="" 13="" 2="" 20.6,="" 3="" 45.*="" 56.0)="" 6.0000="" 6.6000="" 60.0)="" 60.0,="" at="" damaged="" fdlldus.="" further="" id:="" idtal="" in="" jlite)="" junk="" lnk="" med,="" pk="" pk*#="" pkf*="" pre="" s="" tstpt=""></paicabl_item></pre>		
)** **	***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (02AD.MED.,LITE) = 0.0000 .3000 C.CC00 ID: 3 IN LNK 11. PKF= .33 PK*# AT 1GTPT 16 ( 60.0) = .02 ID: 5 IN LNK 95. PKF= .30 PK*# AT 1GTPT 19 ( 20.0) 80.0) = .21</pre>		
¢+ ₩	EMPL. # (VOLLEY)	2 ( 2). WPN NO. 1. AT TIME 303.00.002 = ( 0.0, 0.0, 0.0) AGZ = ( 64.3, 101 . ID: 3 AT ( 63.0, 61.0). TOTAL JUNK FURTHER DAMAGED = .007	.5, 0.	<b>6</b> 0
*	***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (OEAD, MED., LITE) = 0.3000 .3000 0.0000 ID: 3 in L ⁴ K ii. PKF= .3J PK*# AT 16TPI 1 ( 60.0) = .02		
dk3 **	EMPL. # (VOLLEY)	2 ( 2). WPN NJ. 1. AT TINE 300.00. DGZ * ( 0.0, 0.0, 0.0, 0.0) AGZ * ( 89.0, 82	2.6, 0.0	•
* *	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 0.00000 .3000 0.0000  ID: 3 in Lik 11. PKF</pre>		
** EMPL.	PL. # (VOLLEY)	2 ( 2). 4PN NO. 1. AT TIME 300.00. DGZ = ( 3.0, 0.0, 0.0, 3.0) AGZ = ( 44.6,	94.8, . 0.0	, 
**	***CASUALTY*** IO:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) * C., 1000 .3000 G. 6000 IO: 3 IN LWK 11. PKF* .30 PK*# AT TGTPT 16 ( 60.0, 60.0) * .01		
** END	EHPL. # (VOLLEY)	2 ( 2). 4PH NO. 1. AT TIME 300.00. DGZ = ( 0.0, 0.0, 0.0) AGZ = ( 70.3, 105	3.6, 0.0	<b>~</b> 0
**	***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLGWS. PK S (DEAD, MED., LITE) = C.JOGO .3000 G.0000 ID: 3 IN LIK 11. PKF = .3J PK** AT TGTPT 16 ( 60.0) = .01		•
** EMPL.	PL. # (VOLLEY)	2 ( 2). WPN NO. 1. AT TIME 360.00. 062 = ( 0.0, 0.0, 0.0) AGZ = ( 65.1, 163	3.7, 0.0	~ °
) * *	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLGHS. PK S (OEAD,MEO.,LITE) * 0.000C .300C C.0000 ID: 3 IN LNK 11. PKF* .30 PK** AT TGTPT 16 ( 60.0, 60.0) * .00</pre>		
** E42	E421. # (VOLLEY)	2 ( 2). 4PH NO. 1. AT TIME 301.00.062 = ( 6.6. 0.6. 0.6. 0.0) AGZ = ( -5.2. 80	0.0 11.0	<u>~</u>
)** *	***CASUALTY*** ID:	<> R?PAIRA3LF ITEM FOLIGHS. PK S (DEAD,MED.,LITE) = 0.0000 .3000 0.0000 ID: 2 IN LHK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.0, 50.0) = .10		
** EMPL.	PL. * (VOLLEY)	2 ( 2). WPW NO. 1. AT TIME 3JU.33. DGZ * ( C.O. 0.0) AGZ * ( 61.1, 108	3.2, 0.0	-
**	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (OEAD,MEO.,LITE) * C.0000 .3000 C.C000 ID: 3 IM LNK il. PKF* .3) PK** AT TGTPT le ( 60.0, 60.0) * .00</pre>		
** EMP	EMPL. * (VOLLEY)	2 ( 2). HPN ND. 1. AT TIME 300.00. DGZ = ( C.G. 0.0. 0.0. 0.0) AGZ = ( -1.9. 87	7.3, 0.0	<u>-</u>
)* *	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLDAS. PK S (DEAD,MED.,LITE) = 0.0000 .3000 0.0000 ID: 2 IN LAK ID. PKF = .3D PK*# AT TGTPT 13 ( 20.0, 50.0) = .07</pre>		
** = =	EMPL. # (VOLLEY)	2 ( 2) + WPH NJ. 1. AT TIME 360.DL. DGZ * ( 6.6, 0.6, 0.6) AGZ * ( 31.1, 93	3.4, 0.0	<u> </u>
* *	***CASUALTY*** 73: ***CASUALTY*** 10:	<pre>&lt;&gt; <pairable (="" (dead,="" .300c="" 10:="" 19="" 2="" 20.0,="" 5="" 50.0)=".05" 7.0:="" 75.="" 80.0)=".15&lt;/pre" at="" c.0000="" follows.="" i="" i3="" igtpt="" in="" item="" lite)="C.DCOO" luk="" med.,="" pk="" pk*#="" pkf=".3." s=""></pairable></pre>		
** EMPL. #	PL. # (VOLLEY)	2 ( 2), 4PH ND. 1, AT TIME 300.00, 062 * ( 0.0) 0.0) AGZ * ( 41.1)	91.0, 0.0	
)* *	***CASUALTY*** ID:	<> REPAIRABLE ITEM FJULDHS. PK S (05AD,MED.,LITE) = 0.0000 ,3000 G.C000 ID: 2 IN LNK LL. PKF= ,3 · PK*# AT TGIPT 13 ( 20.0, 50.0) = .04		
** EMP	EMPL. # (VOLLEY)	2 ( 2). 4PN NO. 1. AT TITE 350.00.00.05 C.C. 0.C. 0.C. 0.C. AGZ = ( 15.6,	92.3, 0.0	^
) * *	***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLL145. 2K S (DEAD, 4E0., LITE) = 0.3050 .3050 PKF LO. PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30 PKF .30		

	***	
	00	U
80.0	480.00	52590
က်ဝ	E E	<u> </u>
202		ITOP ) =
	AF TIME	H _
15 (	AIL URE AIL URE	TOP OF MEMORY
141	E.	ı,
161		به
H H	44	10
W W.	A0 A0	
* *	w v	, e CO e
28	rici	6
***		
# # U. U.	PP	
Α <del>Υ</del>		H
6,4	25	6. CPUTIN-
0· C	44	O
ŞŽ	JNIT FROM ID 2 AT TGT. PT. 13 HAD A LITE F JNIT FROM ID 3 AT TGT. PT. 15 HAD A MED F	ģ
ZZ	22	ပ္မ
40.5	55	7
	E 4	Ä
63	.209 UNIT	INISHED REPLIC.
* *	55	Š
**	209	ZI ZI
JAL		
ASL		823
***CASUALTY*** ID:	1	TIMERE
* *	<b>^ ^</b>	7.4.7

<pre>&lt;***&gt; BEGINNING REPLICATION</pre>		<**** *6665	*
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 45.0, 40.5, 0.0) AGZ = ( 10 IN LNK 95. PKF= 1.00 PK*# AT TGTPT 5 ( 60.0, 5.0) = 2.00	82.7, -3.8,	0.0
** EMPL. # (VOLLEY)	1 ( 1). WPN NO. 1. AT TIME 1.05. DGZ = ( 40.0, 40.6, 0.0) AGZ = (	58.3, 9.9,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEH FOLLOWS. PK S (0EAD, MED., LITE) * 0.00000 .3000 6.0000 3 IN L'W 11. PKF* .30 PK*# AT TGTPT 16 ( .00.0, .60.0) * .30</pre>		
** EMPL. # (VOLLEY)	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	90.8, 26.4,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt;</pre>		
** EMPL. # (VOLLEY)	1 ( 1), HPN ND, 1, AT TIME 1.00, DGZ * ( 40,C, 40,C, 0.0 ) AGZ ~ (	78.4, 26.7,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 0.00000 .3000 G.C000 3 IN LWK 11. PKF= .33 PK*# AT TGTPT 16 ( 63.3, 60.6) = .15</pre>		
** EMPL. # (VOLLEY)	1 ( 1). 4PH NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	63.2, 31.0,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (05AD, MED., LITE) = 6.0030 .3000 6.0000 2 IN LMY 14. PKF .30 PK## AT TGTPT 13 ( 20.6, 50.0) = .30</pre>		
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.0000 .3000 0.0000 3 IN LNK 11. PKF = .30 PK*# AT 1GIPT 16 ( 6C.0, 60.0) = .10		
** EMPL. # (VOLLEY)	1 ( 1). YPN ND. 1. AT TIME 1.00. DGZ = ( 40.C, 40.C, 0.0 ) AGZ = (	66.6, 13.9,	0:0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.00000 .300C 0.0000 3 IN LW 11. PKF* .3.2 PK** AT TOTPT 16 ( 60.0) 60.0) = .07		
** EMPL. # (VOLLEY)	1 ( 1). 4PH NU. 1. AT TIME 1.CC. DGZ = ( 4C.C), 40.0, 0.0) AGZ = (	92.5, 38.9,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DGAD, MED., LITE) * U.JOUC .3000 C.0000 3 IN L'W 11 PKF* .3J PK** AT TGIPT 16 ( 60.6, 60.0) * .05</pre>		
** EMPL. # (VOLLEY)	1 ( 1) WPH HO. 1. AT TIME 1.60. 062 = ( 40.0, 40.0, 0.0) AGZ = (	67.0, 29.3,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOAS. PK S (DEAD,MED.,LITE) = C.9030 .3300 0.0000 3 IN LWK 11. PKF* .3' PK*# AT TGTPT 16 ( 60.0, 60.0) = .04</pre>	٠	•
** EMPL. # (VOLLEY)	1 ( 1), WPH HG. 1, AT TIME 1,00, 06Z = ( 40.0, 40.0, 0.0) AGZ = (	54.2, 35.6,	0.0
***CASUALTY**# ID:	<> KEPAIRABLE ITEM FOLLOWS. PK S (DFAD,ME9.,LITE) = C.OGOC .30CG G.COOO 2 IN LWK 1C. PKF* .3.3 PK*# AT TGIPT 13 ( 2L.C, 50.C) = .21		
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD.MED.LITE) = 6.3000 .3000 C.C000 3 IN LNK 11. PKF .3J PK*# AT TGTPT 16 ( 60.0) 60.0) = .02</pre>		

0.0	5, 0.0			5, 0.0		3, 0.0)		0.0		5, 0.6)		0.0 .0	( 0.0 )	
85.9	70.5,	6	- n 0	92.6,		85.3		68.0,		67.5		76.9,	70.1,	
71.1,	80.2,	4		72.69		67.3,		104.5,		63.8,		68.69	14.42	
: 1 IN LNK 6. PKF .3. PK*# AI TSTPT 18 ( 60.0) 63.0) = .C8 2 ( 2). JPN NJ. 1. AT TIME 300.00. DGZ = ( 0.0, 0.0, 0.0, 0.0) AGZ = (	<pre></pre>	<pre>&lt;&gt; R2PAIPABLE ITEM FJLLDWS. PK S (DEAD, MED., LITE) = .3CJO C.5OOG C.0OUG 3 IN LNK ii. PKF= .3U PK*# AT TGTPT 16 ( 60.0) 60.0) = .01 1 IN LNK 6. PKF* .3J PK** AT TGTPT 18 ( 60.0) 60.0) = .06 2 ( 2). WPN NJ. 1. AT TIME 30.103. DGZ = ( 0.0. 0.0. 0.0. 0.0) AGZ = (</pre>	3 AT ( 66.J, 67.0). TOTAL JUNK FURTHER DAMAGED	2 ( 2). YPN ND. 2. AT TIME 337.50. 062 " ( 0.0, 0.0, 0.0, 0.0) AGZ " (	<pre>&lt;&gt; REPAIRASLE ITEM FOLLDWS.PK S (DEAD,MED.,LITE) * C.0506 .3000 0.0000 Y*** [D: 3 IN LNK il. PKF* .3n PK** At IGTPT 16 ( 60.0, 60.0) * .00</pre>	2 ( 2). WPN NJ. 1. AT TIME 300.00. DGZ = ( 0.0, 0.0, 0.0) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS.PK S (DEAD, HED., LITE) * 0.0000 .3000 0.0000  /*** ID: 3 IN LNK 11. PKF* .3.) PK*# AT TGTPT 16 ( 60.0, 60.0) = .00</pre>	2 ( 2). 4PN HO. 1. AT TIME 300.60. DGZ = ( 0.0, 0.0, 0.0, 0.0) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS.PK S (DEAD,MED.JLITE) = 0.0000 .300C C.CC00 /*** ID: 3 IN LNX 11. PKF= .30 PK** AT 16TPT 16 ( 60.0, 60.0) = .00</pre>	2 ( 2). WPN NO. 1. AT TIME 330.05. 06Z = ( 0.0, 0.0, 0.0, 0.0) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLDMS.PK S (DEAD,MED.,LITE) = G.DODC .3000 C.COOO  *** ID: 2 IN L'4K 1G. PKF= .3J PK*# AT TGTPT 13 ( 20.0, 50.0) = .02  /*** ID: 1 IN L'4K 6. PKF= .3J PK*# AT TGTPT 1E ( 60.0, 60.0) = .03</pre>	2 ( 2). YPN ND. 1. AT TIME 300.UD. DGZ = ( 0.0) 0.0) 0.0	** EMPL. # (VOLLEY) 2 ( 2). WPN MO. 1. AT TIM" 3NO.OC. DGZ = ( 0.0, 0.0). D.C. O.O ) /AGZ = ( 7. ***CASUALTY*** ID: 1 IN LHK 6. PKF= .3C PK*# AT TGTPT 18 ( 60.0) 60.0) = .01 >>> .631 UNIT FROM IP 3 AT TGT. PT. 16 HAD A LITE FAILURE AT TIME 1200.00 <<<	FINISYED REPLIC. 7. CP.)TIN* 5.000. TOP JF MENGRY ( ITOP ) = 5259C
***CASUALTY*** ID ** EMPL. # (VOLLEY)	***CASUALTY*** ID: ** EMPL. # (VOLLEY)J.JHK CAS.	***CASUALTY*** IO: ***CASUALTY*** IO: ** EMP L. # (VOLLEY)	JUNK CAS. ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. # (VOLLEY)	***CASUALTY*** ID:	** EMPL. # (VOLLEY)	***CASUALTY*** ID:	** EMPL. * (VOLLEY)	***CASUALTY*** ID:	** EMPL. # (VOLLEY)	***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*.* ID:	** EMPL* # ( ***CASUALT >>>	ZZTIMERZZ F

2999. <***> *6665 RNJ. NO. SEEDS = 1J11753214. 18653139C. 1868661004. 8 <***> BEGINNING REPLICATION

43.9, 25.0, C.0 ) AGZ = ( <> REPAIKABLE ITEM FDLLDAS. PK S (DEAD, MED., LITE) * C.0000 .3000 0.0000 2 IN LNK 1C. PKF* .30 PK** AT 7GTPT 13 ( 20.0, 50.0) * .3C 1.00. DGZ = ( 40.C, 40.C, 1 ( 1). WPN NO. 1. AT TIME ***CASUALTY*** ID: ** EMPL. # (VOLLEY)

0.0

en and the medical entrant of the contract of each of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the cont

***CASUALTY*** I	<pre>&lt;&gt; REPAIPAB : 3 IN LNK</pre>	3000 0.0000 300	
** EMPL. # (VOLLEY)	-	0.0 ) AGZ = ( 27.23	9.6, 0.0
***CASUALTY*** ID:	<> REPAIPABLE ITEN FOLLOWS. PK S (DF4D, NED., LITE) = 0.3030 .  2 IN LNK 1JJ. PKF= .33 PK*# AT TGTPT 13 ( 20.0, 50.0) =	3006 6.6000 .21.	
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0. : 10 IN LNK 95. PKF= 1.30 PK*# AT TGTPT 5 ( 80.0, 0.0) =	0.0 ) AGZ = ( 69.3, 2.00	-3.2, 0.0
** EMPL. # (VOLLEY)	1 ( 1). 4PN NO. 1. AT TIME 1.60. DGZ = ( 4C.0, 40.0,	0.0 ) AGZ = ( 9.7,	24.0, 0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.0000 .  1 LM LMK 10. PKF = .3.3 PK*# AT TSTPT 13 ( 20.0, 50.0) =	300c 0.0000 .15	
** EMPL. # (VOLLEY)	'1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ = ( 40.0. 40.0.	0.0 ) AGZ = ( 97.0.	24,5, 0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLO4S. PK S (DEAD, MED., LITE) = 0.0000 . 3 IN LNK 11. PKF = .33 PK*# AT TGTPT 16 ( 60.0, 60.0) =	3000 C.C000	
** EMPL. # (VOLLEY)	1 ( 1). WPN NG. 1. AT TIME 1.00. DGZ . ( 40.0, 40.0,	0.0 ) AGZ = ( 28.3,	8.9, 0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) * 0.0000 .  2 IN LAK 10. PKF* .30 PK*# AT TGTPT 13 ( 20.0, 50.0) *	3000 0.0000 .10	
** EMPL. # (VOLLEY)	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.3, 40.6,	0.0 ) AGZ = ( 57.5s	15.9, 0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FULLDHS. PK S (DEAD.MED.,LITE) = 0.0000 . : 3 in lik 11. PKF = .3. PK*# at TGTPT 16 ( 60.3) = 60.0) =	3000 0.0000 •15	
** EMPL. # (VOLLEY)	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 46.6, 40.6	45.84 ) - Z9V ( 0.0	14.3, 0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FULLUUS. PK S (DEAD, MED., LITE) = 0.0000 .  2 IN LNK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.0, 50.0) =	3000 0.0000 •07	
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = G.OGOO : 3 IN LNK 1.1. PKF= .33 PK*# AT TOTPT 16 ( 60.0, 60.0) =	3000 0.000 •10	
** EMPL. # (VOLLEY)  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:	1 ( 1), WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 7 IN LNK 9. PKF= 1.00 PK*# AT TGTPT 1 ( 0.0, 0.0) = 4 IN LNK 4. PKF= .30 PK*# AT TGTPT 2 ( 0.0, 0.0) = 5 IN LNK 95. PKF= .30 PK*# AT TGTPT 3 ( 0.0, 0.0) = 6 IN LNK 5. PKF= .30 PK*# AT TGTPT 4 ( 0.0, 0.0) = 1.0 IN LNK 95. PKF= i.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 IN LNK 95. PKF= i.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 IN LNK 95. PKF= i.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 PKF= I.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 PKF= I.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 PKF= I.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 PKF= I.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 PKF= I.00 PK*# AT TGTPT 6 ( 0.0, 0.0) = 1.0 PKF= I.00 PK## AT TGTPT 6 ( 0.0, 0.0) = 1.0 PKF= I.00 PKF=	0.6 ) AGZ = ( 3.0. 1.00 .30 .30 .30 .30 .30	-5.79 0.0
** EMPL. # (VOLLEY)  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:	1 ( 1). 4PN 4 IN LNK 4 5 IN LNK 95 6 IH LNK 95	0.0 ) AGZ = ( 15.5; -21 -21 -21	-3.9, 0.0
** EMPL. # (VOLLEY)  ***CASUALTY*** ID:  ***CASUALTY*** IO:  ***CASUALTY*** IO:	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 46.0, 40.0, 40.0, 41.0 LN LNK 4. PKF= .3J PK*# AT TGTPT 2 ( 6.0, 0.0) = 5 IN LNK 95. PKF= .30 PK*# AT TGTPT 2 ( 0.0, 0.0) = 6 IN LNK 5. PKF= .30 PK*# AT TGTPT 4 ( 0.0, 0.0) =	0.0 ) AGZ = ( 4.9. .15 .15 .15	11.5, 0.6
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOAS. PK S (PEAD,MED.,LITE) = 0.0000 2 IN LMK 10. PKF* .3. PK*# AT TGTPT 13 ( 20.0, 50.0) =</pre>	3000 C.0000 3000 C.0000	
** EMPL. # (VOLLEY)  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:	1 ( 1), 4PH 49, 1, AT TIME 1,00, DGZ = ( 4G.0, 4G.C, 4 IN LNK 4, PKF= ,30 PK*# AT TGTPT 2 ( 0.0, 0.0) = 5 IN LNK 95, PKF= ,30 PK*# AT TGTPT 3 ( 0.0, 0.0) = 5 IN LNK 5, PKF= ,31 PK*# AT TGTPT 4 ( 0.0, 0.0) =	0.0 ) AGZ = ( 5.5, - .10 .10 .10	17.9, 0.0

G O		۰ ن		S		- U	•	G		<b>~</b>		0		•		•	•	•
0		•		0		•		0		•		•		•		0		•
10.1,		14.4,		21.6,		4.7,		16.2,		10.9,		14.4,		14.3,		3.4,	•	7 • 8 •
60.6		71.5,		21.0,		15.6,		73.1,		4.2,		30.3,		81.5,		13.3,		0 0
		~ •		<b>پ</b>		_		<u>.</u>		~ •		<u>۔</u>		~		_		
<b>4</b> 62	0	AGZ	2	A62	0	<b>A</b> 62	0	AGZ	0	¥62	0	AGZ	, 0	AGZ	0	¥62 ·	o	A62 .
•	000.	_	0000*	_	000-	-	0000•	_	0000	_	000	<b>.</b> .	0000	_	000	_	• 0000	~
00.001	3000	0.0	3000 6	0.0	3000 c	0.00	3000	0.0	0 0001	0000	3000 0	0.0	.000	0.0	0000	0.00	8	1.00 1.00 0.02 0.02 0.02
37117	• •	.0,	• •	ô	• •	3111	£. •	õ		0	••	c,		ပ်		3111		311111
, 0000 th	.000c 50.0	40	00000	40	.0000 50.0	9000	50.0	4.0	20000	000	50.00	40	50.0	40	3636 63.03	9000	50.0	99999
ဂ် ဂူ ဝို ဝို ဝို ဂို	် ဂိ	0.0	ò	0.0	0,0	0 0 0 0 0 0	0,0	0.0	9 6	င် ဝင်္ခင်္ခင်	υ,	0.0	0.0	0.0		3000	0.0	6
3000	20.	4	.09	4	20.	000	20.	4	- 09	တို့ လိုက်တို (၁) ပ	20.02	4	26.0	4	* 09	3000	20.02	00000 20000
	LITE	•	, LITE 6 (	*	LITE (	•	LITE (	•	LITE (		LITE	•	LITE (		TTE.		TTE.	* - 1
967 3 4	E0.,	7 9 Q		D6.2	ED.,L	067 2 2	ED.,	DG 2	50.7	06 Z 2 3	ED. 31	Z 9 0	ED., 1	2 9 O	ED.,L]	962 2 3	60.JL	062 22 44 64
1.3C. 1GTPT TGTPT TGTPT TGTPT	(DEAD, M TSTPT	1.00.	DE AD, ME TGTPT	1.00.	(DEAD, M TGTPT	1.06. 151PT 161PT 161PT	DEAD, M	1.00.	(DEAD, M. TGTPT	161PT 151PT 151PT 151PT	(DEAD, M)	1.00.	DE 4D, M TGTPT	.00	DEAD, M TGTPT	16121 16121 16121 16121	(DEAD,ME TGTPT	300.00. 16121 15121 16121 16121 15121
AT AT AT	S AT		SAT		SAT	AT AT	SAT		SAT	A T A T A T	S (		Š (		S (	A T A T A T	S (	A T A T A T A T A T A T A T A T A T A T
14444 14444 114444	PK**	7145	PK PK*#	TIME	• PK	7 T T T T T T T T T T T T T T T T T T T	• PK #	TIME	• Þ	T + + +	** **	3 LI L	• PK	114E	****	77.7 77.4 77.4 77.4 77.4 77.4	• PK ¤K*#	12 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	F7LLDWS	• AT	.1045	• AT	11.045	A SOUR	.1.0%S	AT	.1345	A	3).	AT	.33	4	.35	A W. W. W. W. W. W. W. W. W. W. W. W. W.	FJLL9#5	40,000,000
	EM FO	-	EM FOLL PKF=		EK FO	PKF#	EM FOLI		EN FOLL PKF= •	. X Y Y X Y X Y X Y X Y X Y X Y X Y X Y	EN FOLL' PKF= .	=	EN FOL	÷	EM FOL	DXFF T	EN FJL PKF*	20 0 0 0 0 • X X X X X X X X X X X X X X X X X X X
*	Ξ.	.CN N	1:	S	<u>ٿ</u> .	4	Ξ,	WPW NO	12.1	₹ 7 4 1 10	۲.	WPN NO.	н,	JPII NO.	<b>-</b> .	APH NO.	175.	<b>=</b>
,	REPAIRABLE IN LNK 10	Nah .	<u></u>	APR.	ABLE K	Σ 6	AB L				<u>=</u>	<u>a</u>	<u>ب</u>		<del>-</del>		REPAIRABLE ITE IN LAK 10. P	
IN LAK IN LAK IN LAK IN LAK	PAIR N LN	1).	SEPAIRAS IN LYK	<u>:</u>	REPAIPABL 2 IN LNK	ZŽŽŽ	AIR		EPAIRA In Lak	; ; ; ; ;	REPAIRABI 2 IN LNK	1).	AIRA!	:	AISA!	EXX.	AIR	25 E E E E E E E E E E E E E E E E E E E
1 4 IN 5 IN 16 IN	A '	ر ا	m	) 1	¥ 2	1 4 IN 5 IN 6 IN	۳ ر _ا	7	ന	O T C	A REI	~	N	-	٠.,	1 4 ( o in o in o in o in o in o in o in o	* REP 2 IN	S 4 6 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
2000 1000 1000 1000 1000 1000 1000 1000	٧.,		,		\$ °		\$ 6	_	\$ ~		<b>\$</b>		Ç ;		\$ :01		V	
* * * * T	₩ *	(VOLLEY)	** 1D	(VOLLEY)	-	(YOLLEY) (LTY*** ID: (LTY*** ID: (LTY** ID:	1-1	(VALLEY	<b>F-4</b>	(VOLLEY) \LTY*** ID: \LTY*** ID:	0I **	# (VOLLEY)		LLEY)		** II	** 10	# # # # # # # # # # # # # # # # # # #
. ⊄ (VOL SUALTY** SUALTY**: SUALTY**:	LT Y*	( \ 0	* - 1	0 \	*.	2 * * *	,T *	ŪA)	.ΤΥ*:	10 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	. <del>.</del> 7.	(70	.∓ *	170A) #	.∓ ¥*	7 7 7 7 7 7 7 7 7 7	κ*. Τ.	174 174 174 174 174 174 174
L. # ASUAI ASUAI ASUAI ASUAI	15UA!	12.	SUAI	*	**C ASUAL T Y **	SUA!	**C ASUALT Y***	*	SUAL	SUAL SUAL SUAL	SUAL		SUAL		SUAL	SUAL SUAL SUAL SUAL	SUAL	. # (VDLL SUALTY*** SUALTY*** SUALTY*** SUALTY***
* EMPL. * (VOLLEY) ***CASUALTY*** ID ***CASUALTY*** ID ***CASUALTY*** ID ***CASUALTY*** ID	***CASUALTY*** ID	EMPL	***CASUALTY**	EKº L.	7 )**x	* EMPL. * (VOLLE ***CASUALTY*** ***CASUALTY*** ***CASUALTY***	* **	EMP L	***C ASUAL TY***	* EAPL, # (VOLLE ***CASUALTY*** ***CASUALTY***	***C A SUAL T Y***	EMP L.	***C ASUAL T Y **	EMP L.	***CASUALTY**	* EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***GASUALTY*** ID:	***C ASUALT Y***	***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:
****	*	*	*	*	*	* * * *	*	*	*	* * * *	*	*	*	*	*	* * * *	*	*****

	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
	11.1,		-5.3,	-1.5,	-13.2,	-14.1,	9.2,		-15.7,	-6.53	-10.4,	
			14.5,	-7.9,	13.2,	6.4%	60.9		-3.6,	-2.5,	-5.0,	
PK S (DEAD,MED.,LITE) = C.3000 .3000 0.0000 PK*# AT TGTPT 13 ( 20.C, 50.0) = .00	TIME 3CJ.CJ. DGZ = ( G.G. O.G. G.O.) AGZ = ( PK*# AT TGTPT	. PK S (PEAD, MED., LITE) = C.60000 .3000 G.6000 PK*# AT TGTPT 13 ( 20.C, 50.0) = .00	TIME 360.00. DGZ = ( C.G. 0.C. 0.0) AGZ = ( PK** AT TGTPT 2 ( 0.G. 0.0) = .01 PK** AT TGTPT 3 ( 0.G. 0.0) = .08 PK** AT TGTPT 4 ( 0.3, 0.0) = .01	TTHE 360.00. DGZ = ( 3.0, 0.0, 0.0) AGZ = ( PK** AT TGTPT 2 ( 6.6, 0.0) = .01 PK** AT TGTPT 3 ( 0.0, 0.0) = .05 PK** AT TGTPT 4 ( 0.0, 0.0) = .01	TIME 300.06. DGZ = ( 0.0, 0.0, 0.0) AGZ = ( PK*# AT TGTPT 2 ( 0.0, 0.0) = .00 PK*# AT TGTPT 3 ( 6.0, 0.0) = .04 PX*# AT TGTPT 4 ( 0.0, 0.0) = .00	TIME 3C0.09.062 = ( 0.0, 0.0, 0.0) AGZ = ( PK*# AT TGTPT 2 ( 0.0, 0.0) = .00 PK*# AT TGTPT 3 ( 0.0, 0.0) = .03 PK*# AT TGTPT 4 ( 0.0, 0.0) = .00	TIME 360,000. DGZ = ( 0.0, 0.0, 0.0) AGZ = ( PK*# AT TGTPT 2 ( 0.0, 0.0) = .00 PK*# AT TGTPT 3 ( 0.0, 0.0) = .02 PK*# AT TGTPT 4 ( 0.0, 0.0) = .00	• PK S (DEAD,MED.,LITE) = 0.0003 .3000 0.0000 PK*# AT TSIPT 12 ( 20.0, 50.0) = .00	TIME 3 .00. DGZ = ( 0.0, 0.6, 0.0) AGZ = ( PK*# AT IGTPT 3 ( 0.6, 0.0) = .01	TIME 300.60. 067 = ( C.C. 0.0. 0.0) AGZ = ( PK*# AT TGTPT 3 ( 0.0. 0.0) = .01	TIME 300.20. DGZ = ( C.C., C.C., 0.0) AGZ = ( PK*# AT TGTPT 3 ( C.O., 0.0) = .01 15 4AD A LITE FAILURE AT TIME 430.00 <<<	17. TOP JF MEMORY ( ITOP ) . 5259C
<pre>&lt;&gt; GEPAIRABLE ITEM FULLOYS. ***CASUALTY*** ID: 2 IN LNX lo. PKF* .3) PK</pre>	** EMPL, # (VOLLEY) 2 ( 2), 4PN NO, 1, AT TI ***CASUALTY*** ID: 4 IN Lik 4, PKF= 33 PK ***CASUALTY*** ID: 5 IN LNK 95, PKF= 35, PK ***CASUALTY*** ID: 6 IN LNK 5, PKF= 3,9 PK	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. ***CASUALTY*** ID: 2 IN LMK in. PKF</pre>	** EMPL。 # (VOLLEY) 2 ( 21. WPN NO. 1. AT TI ***CASUALTY*** ID: 4 IN L'NK 4. PKF= 3.3 PK ***CASUALTY*** ID: 5 IN LNK 95. PKF= 3.0 PK ***CASUALTY*** ID: 6 IN L'NK 5. PKF= 3.9 PK	** EMPL, * (VOLLEY) 2 ( 2), WPN NJ, I, AT TT ***CASUALTY*** ID: 4 IN LNK 4, PKF* 33, PK ***CASUALTY*** ID: 5 IN LNK 95, PKF* 3, PK ***CASUALTY*** ID: 6 IN LNK 5, PKF* 3, PK	** EMPL。 # (VOLLEY) 2 ( 2)° 4PN NO° 1° AT TI ***CASUALTY*** ID: 4 IN LMK 4° PKF* •30 PK ***CASUALTY*** ID: 5 IN LNK 95° PKF* •30 PK ***CASUALTY*** ID: 6 IN LNK 5° PKF* •30 PK	#* EMPL, # (VOLLEY) 2 ( 2), 4PN NG, 1, AT TI #**CASUALTY*** ID: 4 IN L'1K 4, PKF* 30 PK 6 ***CASUALTY*** ID: 5 IN LNK 95, PKF* 30 PK ***CASUALTY*** ID: 6 IN LNK 5, PKF* 30 PK	** EMPL. # (VOLLEY) 2 ( 2). #PN NO. 1. AT TI ***CASUALTY*** ID: 4 IN LNK 4. PKF= .3.0 PK ***CASUALTY*** ID: 5 IN LNK 95. PKF= .3.0 PK ***CASUALTY*** ID: 6 IN LNK 5. PKF= .3.0 PK	<pre>&lt;&gt; <pairable ***casualty***="" .33="" 10.="" 2="" follows.="" id:="" in="" item="" l'nk="" pk<="" pkf*="" pre=""></pairable></pre>	** EMPL。 # (VOLLEY) 2 ( 2). 4PN NJ. 1. AT TI ***CASUALTY*** IO: 5 IN L4K 95. PKF* .3D PK	** EMPL。 # (VOLLEY) 2 ( 2). WPN NO. 1. AT TI ***CASUALTY*** ID: 5 IN LNK 9j. PKF* .3C PK	** EMPL. * (VOLLEY) 2 ( 2). WPN NJ. 1. AT TI ***CASUALTY*** ID: 5 IN LYK 95. PKF* .30 PK >>> .02 INIT FROK ID 3 AT 161. PT. 16	ZZTIMERZZ FINISHED REPLIC. 8. CP19TIM= 0.917.

5999. <***>

4666

16034055.

RMD. NA. SEEDS = 1940475265. 18653139C.

°

<***> 9FGINNING RFPLICATION

7.152. TJP DF MEMORY ( ITOP ) . 52590

9. CPIJTIY#

ZZTI 4ERZZ FINISHED REPLIC.

Consideration of the contraction 
<***	BEGINNING REPLICATION	1.3. RND. ND.	SEEDS =	934053899.	186531396.	1354000673.	46664	5999.	<***>	
>>> >>> XIIMEKZZ	1.00 UNIT FROM ID 1.00 UNIT FROM ID 1.00 UNIT FROM ID FINISHED REPLIC.	2 AT TGT. PT. 3 AT TGT. PT. 2 AT TGT. PT. 10. CPUTIM=	13 440 A 16 840 A 13 840 A 7.552. TO	LITE FAILURE LITE FAILURE LITE FAILURE OP JF MEMORY (	AT TIME AT TIME AT TIME ITOP ) =	300.00 <<< 370.00 <<< 250.00 <<< 52590				
8 <**	BEGINNING REPLICATION	11. RND. ND.	Seeds *	1293538396.	186531390.	396520764.	*6667	5999.	< * * * * * * * * * * * * * * * * * * *	
>>> >>> >>> >>>	1.000 UNIT FROM ID .003 JNIT FROM ID 1.000 UNIT FROM ID 1.00C UNIT FROM ID FINISHED ACPLIC.	2 AT TGT. PT. 2 AT TGT. PT. 3 AT TGT. PT. 2 AT TGT. PT. 11. CPUTIM*	13 HAD A MI 13 HAD A L 16 HAD A DE 13 HAD A L 7.056. TOP	MED FAILURE LITE FAILURE DEAD FAILURE LITE FAILURE )P OF MEMORY (	AT TIME AT TIME AT TIME AT TIME ITOP )	370.00 << 600.00 << 720.00 << 1140.00 << 52590			•	
***	BEGINNING REPLICATION	12. RND. NO.	SEEDS .	1119229949.	18653139C.	392252403•	• 6664	. 5999	<*****	
ZZTIMERZZ	FINISHED REPLIC.	12. CPUTIA=	3.095. TOP	P JF MEMORY (	i 10P ) •	52590				
**	BEGINNING REPLICATION	13. RND. HD.	. SEE03 =	678959936.	18653139C.	1952C13376•	•6664	5999.	<****	
**************************************	1.350 UNIT FROM ID .111 UNIT FROM ID .036 UNIT FROM ID 1.400 UNIT FROM ID	2 AT TGT. PT. 2 AT TGT. PT. 2 AT TGT. PT. 3 AT TGT. PT. 13. CPUTIM.	13 HAD A L 13 HAD A L 13 HAD A L 16 HAD A L 8.540. TOP	LITE FAILURE LITE FAILURE LITE FAILURE LITE FAILURE	AT TIME AT TIME AT TIME AT TIME ITOP ) =	121.00				
<b>♦</b>	BEGINHING REPLICATION	14. RHD. NA.	· SEFOS ·	2042859962• 1	1535658748.	598994228•	*666*	\$999	< ·	
### EMPL. ### ### ## CA	* EMPL. # (VOLLEY) 1 ( 1 )  ***CASUALTY*** ID: 2 IN L  ***CASUALTY*** ID: 9 IN L  ***CASUALTY*** ID: 19 IN L	( 1). UPH NJ. 1. AT 7 RFP LIRABLE ITEM FULLDUS. 2 IN LMK 10. PKF= .3. F 9 IN LMK 3. PKF= 1.0.9 F 3 IN LMK 3. PKF= 1.0.9 F	FINE PK S PK*# Al PK*# Al	1.C5. D6Z = (DEAD, MED., LIT 13 ( TGTPT 13 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 ( TGTPT 15 (	E) # 6.00 20.03 60.03 60.03	40.65 60.00 60.00 60.00 70.00 70.00 70.00 70.00 70.00	0.c ) AGZ = ( 0 0.0000 3.30 4.0	50.93	58.7, 0	•

5,000	0.0	61.7, .0.0	0.0	•	0.0	3, 0.6	9.0	5, 0.0
10. 3	98	61,	63.	.62	65.4.	93.	. 89.	34.
62.49	-12.8,	-5.0 ₅	42.3,	44.7,	2° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5°	-6.79	32.7,	35.0,
3 IN LNK 11. PKF= .30 PK** AT TGTPT 16 ( 63.0, 60.0) = .30 12 IN LNK 7. PKF= 1.00 PK** AT TGTPT 17 ( 60.0, 60.0) = 1.00 1 IN LNK 6. PKF= .32 PK** AT TGTPT 18 ( 60.0, 60.0) = 1.2 1 ( 1). WPN NO. 1. AT TIME 2.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 2 IN LNK 10. PKF= .31 PK** AT TGTPT 13 ( 50.0, 60.0) .3000 0.6000	REPAIRABLE ITEM FOLLOWS, PK S (DEAD, MED., LITE) = 1.00000 0.00000 0.3 IN LNK 11. PKF= 1.00 PK*# AT TGTPT 16 (60.0) = .70  I IN LNK 6. PKF= 1.00 PK*# AT TGTPT 18 (60.0) 60.0) = .28  ( 1). WPN NG. 1. AT TIME 1.000 DGZ = (40.0, 40.0, 20.0, 20.0) PK S (DEAD, MED. LITE)	REPAIRABLE LIEN FULLUNS. PK S (UEAD, MED, LITE) = 0.0000  ( 1) WPH NO. 1. AT TIME 1.00. 062 = ( 40.0, 40.0)  REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED, LITE) = 0.0000  LINK 10. PKF	LIN LNK OF FKF# .3J FKF# AI IGIPT II ( 20.0p 50.0) =  REPAIRABLE ITEM FOLLOWS. PK S (DEADSMED. LITE) = C.0000 .3000  IN LNK 10. PKF# .3J PK*# AT TGTPT 13 ( 20.0) 50.0) =  IN LNK 95. PKF# .3J PK*# AT TGTPT 19 ( 20.0) 80.0) =  ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0) 40.0	REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.0000 .3000 0.0000 2 IN LNK 10. PKF* .30 PK*# AT 15TPT 13 ( 20.0, 50.0) = .05 ( 1). APN NO. 1. AT IIME 2.00. DGZ = ( 40.0, 40.0, 0.0) REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.0000 .3000 0.000 2 IN LMK 10. PKF* .30 PK*# AT 16TPT 13 ( 20.0, 50.0) = .04	PAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LIT IN LNK 10. PKF* .50 PK** AT 16TPT 13 ( 1). WPN NO. 1. AT TEME 1.00. DGZ = PAIRABLE ITEM FULLOWS. PK S (DEAD, MED., LIT (N LW 10. PKF* .30 PK*# AT 16TPT 13 (	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	( 1) . 4PN NO. 1. AT TIME 1.00. DGZ = ( 4G.G., I IM LNK 6. PKF= .3.) PK*# AT TSTPT 11 ( 2C.G., REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = G.C. IN LNK 1C. PKF= .3.0 PK*# AT TGTPT 13 ( 20.0.)	1 ( 1), WPH HO. 1. AT TIME 1.0C. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 1 IN LNK 6. PKF= .3) PK = AT TGTPT 11 ( 20.0, 50.0) = .09
***CASUALIY*** ID: ***CASUALIY*** ID: ***CASUALIY*** ID: ***CASUALIY*** ID: ***CASUALIY*** ID:	***CASUALTY*** ID: ***CASUALTY*** ID: ** EMPL,	***CASUALTY*** ID:  ** EMPL. # (VOLLEY)  ***CASUALTY*** ID:  ***EMPL. # (VOLLEY)  ***EMPL. # (VOLLEY)		***CASUALTY*** ID: ** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID:	***CASUALTY*** ID:  EMPL. # (VOLLEY)  ***CASUALTY*** ID:	** EMPL. # (VOLLEY) 1 ***CASUALTY*** ID: 2	** EMPL. # (VOLLEY) 1  ***CASUALTY*** ID: 3  ***CASUALTY*** 1D: 3	** EMPL, # (VOLLEY) ***CASUALTY*** ID:

general designation of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the pro

**************************************	<> REPAIRABLE 2 IN INK 3	RABLE ITEM	M FOLLOWS	MS. PK	~ ⊦	EAD, HE	)., LIT	0	• 1	o ِ	.0000				
EY)		37	•	TIME		1.00	٠ <u>١</u>		3	0.0	) AG	) = Z	11.3,	81.39	0.0
***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRASI 2 IN LNK 5 IN LNK 6 IN LNK 10 IN LNK</pre>	13. 13. 25.	PKF .30 PKF .30 PKF .30 PKF X.30	0WS. PK 30 PK*# 30 PK*# 03 PK*#	S (D) AT TA AT TA AT TA	DEAD, HE TGTPT TGTPT TGTPT TGTPT	0., LIT 13 ( 19 ( 20 ( 21 (	E) = 0. 20.0, 20.0, 20.0, 20.0,	80.00 80.00 80.00	3000 0°C •00 •21 1•00 2•00	0000				
** EMPL. # (VOLLEY)	1 ( 1).	WPII NO	1. 1. AT	T TIME		1.00.	DG Z .	(0.0)	40.04	0.0	) AG	) = Z:	-18.7,	61.5,	0.0
***CASUALTY*** ID:	<> REPAIRABLE 2 IN LNK 10	RABLE ITEM	FOLL	G4S. PK 3) PK*#	S (0)	EAD, MED	13 (	20.05	.0000 50.01	3000	• 0000				
** EMPL. # (VOLLEY)	1 ( 1).	. WPN NO.	1. 1. AT	T TIME	•	1.00.	DG2 = (	( 43.63	40.03	0.0	) AG	) = 29	-22.7,	57.5,	
***CASUALTY*** ID:	<> REPAIRABL 2 IN LNK	RABLE ITEM	FILL	045. PK 30 PK*#	S (D)	EAD, M GTPT	ED.,LITE	E) = 0 20.05	.0000 .3 50.0) =	3000 000	• 0000			•	
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). 1 IN LNK	WPN NO.	1. 1. AT	T TIME	AT TA	1.00. GTPT	DGZ = (	(20.02)	40.05	900	) AG	) = Z:	2.8,	53.8,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). 5 EN LNK	WPN NO.	1. 1. AT	T TIME D PK*#	AT TA	1.05. GTPT	19 (	20.05	40.05	0.0	) AG	) - 29	13.3,	87.6,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). 5 IN LNK	WPN ND.	1. 1. AT	T TIME 0 PK*#	AT TA	1.00. GTPT	062 = (	( ,6.0,	40.03	0°C	) AG	) = 2:	14.5,	81.5,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** IO:	1 ( 1). 1 IN LNK 5 IN LNK	4PN N 6.	10. 1. AT PKF= .30 PKF= .30	T TIME 0 PK*# 0 PK*#	AT TA	1.00. 151PT 161PT	DGZ = ( 11 ( 15 (	26.03 26.03	40.03 50.03 80.03	0.00	) AG	) = Z:	25.4,	73.9,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** [D:	1 ( 1). 5 I.1 L'4K	. 424 ND. IK 95. PKF	J. 1. AT	T TINE	AT TA	1.00. GTPT	DGZ • (	40.02	40.0%	0.0	) AG	) - Z:	36.0,	74.25	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). 5 IN LNK	1. WPN NO.	1. 1. AT	T TIME	AT T	1.09. TGTPT	DGZ = (	26.03	40.03	0.00	) AG	) = Z:	6.7.9	78.4,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). 1 IN LNK	WPN NO.	1. 1. AT	T TIME	AT TA	1.00. GTPT	DGZ = (	( 46.03	40°C>	0.0	) AG	) • Ž:	42.62	60.2,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID:	1 ( 1). 1 IN LAK 5 IN LAK	4PN N9W 8	10. 1. AT PKF* .3.	T TIME 5 PK##	AT TA	1.03. TGTPT TGTPT	DGZ = ( 11 ( 19 (	20.03	\$0.0; \$0.0) = 80.0) =	0.220	) AG	) = Z9	14.2,	73.7,	. 0.0
** ENPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1)• 5 IN L ⁴ K	K 95. PKF	1. 1. AT	T TIME D PK*#	AT TO	1.00. TGTPT	062 = ( 19 (	20.03	40.C3 80.C3	0.0	) AG	) = Z:	5.42	87.3,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1).	14 450 NO.	1. 1. AT KF= .30	T TIME	AT T	1.00. GTPT	DGZ = (	( 40.0 <i>)</i> 20.0 <i>)</i>	40.05 80.01 =	.0.0	9 ¥ €	9 = 29	14.6,	60°96	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). 5 IN L'IK	1. WPN NO. IK 95. PKF	1. 1. AT	T TIME D PK**	AT Te	1.60. TGTPT	DGZ = (	( 40.05 20.03	40.05 80.0)	.01	) AG	) = Z:	27.2,	94.53	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 ( 1). 5 IN LAK	1. WPN ND.	1. 1. AT	T TIME	AT Te	1.00. TGTPT	062 = ( 19 (	20.03	40°C8	0.0	) AG	) = Z:	35.4,	74.6,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** IG: >>>	1 ( 1). : 5 IN LNK FROM ID 2	1K 95. PKF 2 AT TGT.	1. A PT.	T TIME U PK*# 1 13 4AD	54	1.03. TGTPT LITE FA	). DGZ = (	20.03 AT TIME	40.C, 80.0) = 1080.C0	0.00	9 <b>V</b> (	) = Z:	17.7,	83.8%	0.0

3.843. TOP OF MEMORY ( ITOP ) . 52590 ZZTIMERZZ FINISHED REPLIC. 14. CPUTIM=

<pre>&lt;***&gt; BEGINNING REPLICATION</pre>	S REPLIC!	ATION	15.	RND. NO.		Scens .	11249	11249418vO. 1454809091.	14548	09091.	153154083	983.	•	•6664	•6665	<b>‡</b>	
>>> 1.000 UNIT	JNIT FROM JNIT FROM	10 10	2 AT T	.6T. PT.	 133	HAD	A LITE A YED	FAILURE FAILURE	AT	TIME	240.00	* *					
** EMPL. # (VOLLEY) ***CASUALTY*** ID:		2 ( 2). 1 IN LAK	ири 6.	NO. PKF.	. AT	TIME PK*# AT	300.00 TGTPT	. 062 .	~ ~	0.0	*3.0	0.0	¥ ~	) = Z9	62.5,	74.2,	0.0
** EMPL. # (VOLLEY) ***CASUALTY*** ID:		( 2). 1 IN LAK	4PN 6.	NJ. 1 PKF"	. AT	TING PK*# A	390.00 AT TGTPT	. DGZ	99	0.00	*0.0	0.00	. <b>∀</b> 6	) = Z:	70.2,	74.8,	0
** E4PL. # (VOLLEY) ***CASUALTY*** ID:	61	1 ( 2).	N d y	NO. 1 PKF.	. AT	TIME PK*# A	300.00. AT TGTPT	. 06Z	, zc	3.0.	50.03	.18	¥ ~	A62 r (	36.69	67.55	••
***CASUALTY*** ID: ***CASUALTY*** ID:	Ç	REPAIRAB ZIN LNK IIN LYK	LE I 16. 6.	TEM FOLLOWS PKF= .33	11.04S.	PK*# AT	S (OEAD,MED AT TGTPT AT TGTPT	• ~ ~	3 ( 20 8 ( 60	0.0	.0000 50.03 60.03	3000 C.	0000			•	
** EMPL. # (VOLLEY)	LEY) 2	( 2).	Nd.	NO. 1	• AT	TIME	300.00	. 290 ·	<u>.</u>	0.0	0.0	0.0	۲	) = Z9Y	48.19	86.7,	0.0
***CASUALTY*** ID:	Ç	REPAIRABLE I		TEN FOLLOWS	.33 p	PK** S	<b>)</b>	(DEAD,MED.,LIT TGTPT 13 (	E) =	0.0	.0000 50.0) .	.000 C.	0000				
** EMPL. # (VOLLEY)	LEY) 2	(2).	MPR.	AB. 1	. AT	TIME	300.00	. DGZ .	<u>.</u>	0.00	0.0	0.0	×	) = Z9V	42.73	86.3,	0
***CASUALTY*** IU:	<b>\$</b>	REPAIPABLE 1 2 IN LNK 10.	3 LE I	TEM FOLLOWS PKF* •33	.3% p	PK S	S (DEAD, MED. AT TGTPT 1		,LITE) = 3 ( 20	રું	0.0000 .3(	3000 C	0000				
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	•	2 ( 2). 1 IN LNK	¥PN ċò	ND. 1	. AT	TIME PK*# A	300.05 AT TSTPT	. DGZ	99 )	0.0		3.00	٥	AGZ = (	79.00	70.07	0.0
** EMPL. # (VCLLEY) ***CASUALTY*** ID:		2 ( 2). 1 IR LYK	4PN 6.	*10. 1	. AT	TINC PK** A	300.00. AT TGTPT	. DGZ .		0.0	.0.0	0.0	, ¥	AGZ = (	71.2,	73.4,	0.0
<pre>c* EMPL. # (VOLLEY) ***CASUALTY*** ID:</pre>	~1	( 2). 1 IN LNK	N d h	NO. 1	. AT	TIME PK*# A	300.00. AT TGTPT	. DGZ	09 )	0.0.	*3.0	0.0	¥ .	79¥	73.8,	67.63	0.0
** EMPL. # (VOLLEY)	LEY) 2	(2).	M PN	10. 1	. AT	3K11	300.00	. 200 ·	<u>.</u>	0.0	0.0	0.0	٥ ٧	) = 29V	33.2,	80.9,	0.0
***CASUALTY*** ID:	\$	REPAIRABLE 2 IN LYK 10 SIN LYK 95	AB(E I K 13. K 97.	T X Y Y X Y X Y X Y X Y X Y X Y X Y X Y	FOLLOWS.	7 * * 7 * *	S (DEAD,MED. AT TGTPT 1 AT TGTPT 1	MED.,LI 13 ( 19 (	TE) 23 20	0 00	50.0)	3000 0. .01 .30	• 0000				
** EMPL. # (VOLLEY)	7	(2).	¥ P	110.	· AT	TIME	300.00	. 290 ·	<u>.</u>	0.0	0.0	0.0	) A(	) = Z9V	51.6,	79.4,	0.0
***CASUALTY***	10: 10:	* REPAIRABLE 3 2 IN LUK 13. 1 IN LUK 6.	ABLE I K 13. K 6.	Η.	EM FOLLOYS. PKF= ,3J P PKF= ,3G P	PK*# AT	S (DEAD, MED, AT TGTPT ] AT TGTPT ]		,LITE) = .3 ( 20 .8 ( 60	20.3, 60.03,	.0000 .3( 50.0) 60.0)	.000 C.	0000			•	•
** EMPL. * (VOLLEY)  ***CASUALTY*** ID:  >>>	LEY) 2 (NIT FROM UNIT FROM UNIT FROM UNIT FROM	18 10 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	WPN AT A AT T AT T	NO. 1 PKF 1 ST. PT 1ST. PT		1114 A A A A A A A A A A A A A A A A A A	300.00. A TGIPT A NEAD F A LITE F A LITE F	DGZ = 18 ( 18 ( FAILURE FAILURE FAILURE	A A T A A T	O SHEET	840000 480000 840000 840000 840000	0.0  	, ¥	) = 29¥	65.8,	73.2,	0
ZZTIMĖRZZ FINIS	FINISHED REPLIC.		15. CPU	CPUTI%=	3.15	٠,•	TOP 0F	MEMORY	( 110	• •	52596						

2999. <***>
4999.
1. 1805669448.
276442901
1222627088.
SGEDS .
ON CN'P
16.
BEGINNING REPLICATION
<***

FRJM ID 2 AT TGT. PT. 13 HAD A FRGM ID 2 AT TGT. PT. 13 MAD A			
** EMPL, * (VOLLEY) ; ( 2). 'PPN NU, 1. AT TIME RAD, BG. BGZ = ( 0.0), 0.0, 0.0, AGZ = ( 46.4),  ***CASUALTY*** ID: 2 IN LNK 10, PMF = .30 PK** AT TGTPT 12 ( 20.0, 50.0); = .10	.4, 47.1,		0.0
<pre>&lt;**CASUALTY*** ID: 3 IN LNK 11. PKF= 330 PK*# AT TGTPT 16 ( 60.0) = .3000 G.0000 G.0000 ***CASUALTY*** ID: 3 IN LNK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0) = .30 ***CASUALTY*** ID: 1 IN LNK 0. PKF= .30 PK*# AT TGTPT 18 ( 60.0) = 60.0) = .12</pre>			
** EMPL. * (VOLLEY) 2 ( 2). JPN '10. 1. AT TIME 300.00. DGZ = ( 0.0). 0.C, 0.0) AGZ = ( 84.6). ***CASUALTY*** ID: 15 IN LNK 95. PKF= 1.30 PK*# AT TGTPT 5 ( 86.6). 3.0) = .67		4.79, 0	0.0
** EMPL. # (VOLLEY) 2 ( 2). 4PN NJ. 1. AT TIME 303.65. D62 = ( 0.6, 0.6, 0.6) AGZ = ( 57.1,	1, 28.7,		0.0
<> REPAIRABLE ITEM FOLLOYS. PK S (DEAD, MED., LITE) = 0.000C .300C 0.000C			•
<pre>&lt;**CASUALTY*** ID: 3 IN L4K 11. PKF = .33 PK** AT TGTPT 16 ( 60.0) = .21</pre>			
** EMPL. # (VOLLEY) 2 ( 2). YPN NJ. 1. AT TIMC 3CU.OC. DGZ * ( 6.0, 0.0, 0.0, 0.0) AGZ * ( 58.5,	.5, 37.6,		0.0
<pre>&lt;**CASUALTY*** ID: 2 IN LNK i.o. PKF = .3.0 PK** AT TGTPT</pre>			
<pre>&lt;**CASUALTY*** ID: 3 IN LMK 11.0 PKF</pre>			
** EYPL. # (VOLLEY) 2 ( 2). 4PN NO. 1. AT TIME 300.65. DGZ = ( 0.6, 0.6, 0.6, 0.6) AGZ = ( 63.6,	.6, 32.1,		( )*0.
<pre>&lt;**CASUALTY*** ID: 2 IN LNK 10. PKF = .30 PK** AT TGTPT 13 ( 20.0) = .63</pre>			
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (nEAD,MED.,LITE) = G.000C .3000 0.600U ***CASUALTY*** ID: 3 IN LMX 11. PKF* .3. PK*# AT TGTPT 16 ( 60.0, 60.0) = .10</pre>			
** EMPL. * (VOLLEY) 2 ( 2). WPW NJ. 1. AT TIME 300.00. DGZ * ( 6.0, 0.0, 0.0) AGZ = ( 47.3,	.3, 22.6,		0.0
<**CASUALTY*** ID: 2 IN LNK IU- PKF = .33 PK** AT TGTPT 13 ( 20.0, 50.0) = .02			
<pre>&lt;**CASUALTY*** ID: 3 IN LNK 11. PKF = .3J PK # TGTPT 16 ( 60.0) 69.0) = .07</pre>	·		•
** EAPL. # (VOLLEY) 2 ( 2). WPN HG. 1. AT TIME 339.00. 062 * ( 0.0, 0.0, 0.0) AGZ * ( 63.4,	.4, 42.6,		0.0
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.0000 .3000 0.0000 ***CASUALTY*** ID: 2 IN LNK 10. PK== .3. FK*# AT TGTPT 13 ( 20.0, 50.0) = .02JUNK CAS ID: 3 AT ( 6C.5, 50.0). TOTAL JUNK FURTHER DAMAGED = .097</pre>			

*3000 C*0000 O*0000

<> RFPAIPA3LE ITEM FULLUYS. PK S (DEAD, MED., LITE) =

***CASUALTY*** ID: ***CASUALTY*** ID:	3 IN LNK 11, PKF= ,3J PK*# 1 IN LNK 6, PKF= ,3J PK*#	AT TGTPT 16 ( 60.0, 60.0)05 AT TGTPT 18 ( 60.0, 60.0)06		
** EMPL. # (VOLLEY)	2 ( 2). 4PH NO. 1. AT TING	303.00.06Z = ( 0.0, 0.0, 0.0) AGZ = (	61.49 11.39	0.0
***CASUALTY*** ID:	<pre>&lt;&gt;</pre>	S (DEAD,MED.,LITE) - 0.Judo .3030 0.C030 AT TGTPT 16 ( 60.0, 60.0)04		
** EMPL. # (VOLLEY)	2 ( 2) . WPN ND. 1. AT TIME	300.00. DGZ + ( 0.0, 0.0, 0.0) AGZ + (	97.79 33.10	0.0
***CASUALTY*** ID:	S REPAIRABLE ITEN FULLOWS. PK 3 IN LNK 11. PKF* .30 PK*#	S (DEAD,MED.,LITE) = 0.00000 .3000 0.0000 At TGTPT 16 ( 60.0, 60.0) = .02		
** EMPL. # (VOLLEY)	2 ( 2), 4PN NO, 1, AT TIME	303.00.06Z = ( 0.0, 0.0, 0.0) AGZ = (	92.3, 37.8,	0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK 3 IN LNK 11. PKF= .30 PK*¢	S (DEAD,MED.,LITE) * 6.3050 .3000 0.0600 AT TGTPT 16 ( 60.0, 60.0) * .02		
** EMPL. # (VOLLEY)	2 ( 2) . WPN NO. 1. AT TIME	.C. 0.0 ) AGZ = (	83.6, 23.8,	0.0
***CASUALTY*** ID:	C> REPAIRABLE ITEM FOLLOWS. PK 3 IN LNK 11. PKF* .30 PK*#	\$ (DEAD, MED, , LITE) = 0.3030 .3000 0.0000 AT TGTPT 16 ( 60.0, 60.0) = .01		
** EMPL. # (VOLLEY)	2 ( 2). WPN NO. 1. AT TIME	3CU. CG. DGZ = ( 0.0, 0.0, 0.0) AGZ = (	57.6, 36.4,	0.0
<pre>&lt;&gt; REPAIRABL ***CASUALTY*** ID: 2 IN LNK **JUNK CAS** ID: 3 AT</pre>	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK 2 IN LNK IO, PKF= ,3) PK** ID: 3 AT ( 60.C, 50.C).</pre>	S (DEAD, M.ED., LITE) - 0.0000 .3000 0.0000 AT TGTPT 13 ( 20.0, 50.0)C.1 IDTAL JUNK FURTHER DAMAGED094		•
***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK 3 IN LNK 11. PKF= .30 PK*# 1 IN LNK 6. PKF* .30 PK*#</pre>	S (DEAD, MED, LITE) = .3COC 0.000C 0.0000 AT TGTPT 16 ( 60.0, 60.0) = .01 AT TGTPT 14 ( 60.0, 60.0) = .04		
** EMPL. # (VOLLEY)	2 ( 2). YPN NO. 1. AT TIME	330°64° 062 = ( 0.0, 0.0, 0.0) AGZ = (	48.6, 40.6,	0.0
<pre>&lt;**CASUALTY*** ID: 2 .3 .3UNK CAS In:JUNK CAS In:</pre>	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK 2 IN LNK 10. PKF= .30 PK** In: 3 AT ( 66.5) 05.6).</pre>	S (DEAD, MED, LITE) = 0.0000 .3000 G.0000 AT TGTPT 13 ( 20.0, 50.0) = .01 TDTAL JUNK FURTHER DAMAGED = .066		
***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK 3 IN LWK 11. PKF= .3.) PK*# 1 IN LNK 6. PKF= .30 PK*#</pre>	S (DEAD, MED, , LITE) = ,3000 C,0000 0,0000 AT IGTPT 16 ( 60.0, 60.0) = ,01 AT IGTPT 18 ( 60.0, 60.0) = ,03		
** EMPL. # (VOLLEY)	2 ( 2). 4PN NO. 1. AT TIME	303.69.062 = ( 3.0, 0.6, 0.6) AGZ = (	94.7, 42.5,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FJLLO4S. PK 3 IN LNK II. PKF* .50 PK**</pre>	S (DEAD, MED., LITE) = 0.0000 .3000 0.0000 AT TGTPT 16 ( 60.0, 60.0) = .00		
** EMPL. # (VOLLEY)	2 ( 2). APN NO. 1. AT TIME	303.00.052 = ( 0.0. 3.0. 0.0 ) AGZ = (	66.6, 12.3,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK 3 IN LNK 11. PKF* .3. PK*#</pre>	S (DEAD,MED.,LITE) * 0.0000 .3000 0.0000 AT TGTPT 16 ( 60.0, 60.0) * .00		
** EMPL. # (VOLLEY)	2 ( 2). JPH NG. 1. AT TIME	309.00.062 * ( 0.0, 0.0, 0.0) AGZ * (	92.1, 37.6,	0.0
***CASUALTY*** ID:	<> REPAIRABLE (TEN FOLLOUS, PK 3 IN LUK 11, PKF= ,3) PK*#	\$ (DEAD,MED.,LITE) = 0.00000 .3000 0.0000 At TGTPT 16 ( 60.0, 60.0) = .00	•	•
** EMPL. # (VOLLEY)	2 ( 2). JPN NJ. 1. AT TIME	304.00.052 * ( 0.0, 0.0, 0.0) AGZ * ( '	46.1, 14.7,	0.0
<pre></pre>	* REPAINABLE ITEM FOLLOWS. PK 2 IN L4K 14° PKF 3.9 PK** 577 *** 1NITS OF ID 2 AT CI x	S (DEAD,MED.,LITE) = 0.0000 .3000 0.0000 AT TGTPT 13 ( 20.0, 50.0) = .01 00RDS 10.0, 16.0 = .131		

AEDIUM. PUT INTO MEDIUM JUNKPILE.

	AG7 * ( 53.9.	41.4.	0.0
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 0.00000 .3000 0.0000  JALTY*** IO: 2 IM LNK 1.0. PKF* .3.) PK** AT TGTPT 13 ( 20.0, 50.0) = .00  JALTY*** ID: 2 IM LYK 6. PKF* .3.0 PK** AT TGTPT 18 ( 60.0, 60.0) = .02  **IC UNIT FROM IO 3 AT TGT. PT. 16 '4DD A MED FAILURE AT TIME 720.00 &lt;&lt;&lt;</pre>	0		
ZZTIMERZZ FINISHED REPLIC. 10. CPUTIM= 9.674. TOP OF MEMORY ( ITOP ) = 52590			
<***> BEGINNING REPLICATION 17. RND. HO. SFEDS = 94370626.2. 281628363. 115659448. 4999.	. 5999.	<b>**</b> **	
1. AT TIME 300.00. DGZ = ( C.C. 0.C. 0.C.) AGZ = ( -	AGZ = ( -9.3,	34.5,	0.0
KEPAIKABLE IIEM FÜLLUMS. PK S (DEADAMED.,LITE) = 0.3030 .3000 0.6000 2 IM LAK 13. PKF= .30 PK** AT TGTPT 13 ( 26.C, 50.0) = .30 ( 2). JPN NJ. 1. AT TIME 393.00.00Z = ( 0.0, 0.0, 0.0, 0.0)	<b>-</b> 29	28.2,	0.0
<pre></pre>	00		,
** EMPL, # (VDLLEY) 2 ( 2). UPN NO. 1. AT TIME 399.0G. DGZ = ( C.0., O.0., O.0.) AGZ - ( -2 S PEPAIRABLE ITEM FOLLOWS. PK S (DEAD.HED., LITE) = G.0000 0.0000 .3000 S ***CASUALTY*** ID: 2 IN L'1K 1.5 PKF= .3) PKF* AT TGTPT 13 ( 20.0.) 50.0) = .15	- Z9	23.3,	000
2 ( 2). 4PN HB. 1. AT TIME 503.03. DGZ = ( 0.0, 0.0, 0.0, 0.0, AGZ = ( 1.0): 2 AT ( 20.0, 50.0). TOTAL JUNK FUPTHER DAMAGED = .044	AGZ = ( -7.3,	19.92	. 0.0
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK S (DEAD, LITE) = 0.0000 .3000 0.0000 ***CASUALTY*** ID: 2 IN LNK 10. PKF= .33 PK*# AT TGTPT 13 ( 20.0, 50.0) = .16</pre>	00		
** EMPL, # (VOLLEY) 2 ( 2), WPN NO. 1. AT TIME 3:0.00.062 = ( 0.69, 0.69, 0.0) AGZ = ( ** EMPL, # (VOLLEY) 2 ( 0.0) ** 1.00 ) AGZ = ( ** EMPL, ** (VOLLEY) 2 ( 0.0) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) ** 1.00 ) **	AGZ = ( -5.69	10.8,	0.0
<> APPAIRABLE ITEM FOLLOAS, PK S (OEAD, LITE) = G.3000 .300C C.CO00 ***CASUALTY*** ID: 2 IN LNK 16. PKF* .33 PK*# AT 15TPT 13 ( 20.0, 50.0) = .07	00		
** EMPL. # (VOLLEY) 2 ( 2). WPN NO. 1. AT TIME 309.00.00 DGZ # ( C.G. 0.0) 0.0) AGZ # ( - **CASUALTY*** ID: 4 IN LMK 4. PKF# 33 OK*# AT TGTPT 2 ( 0.0) 0.6) # .21 ***CASUALTY*** ID: 5 IN LMK 95. PKF# .33 PK*# AT TGTPT 3 ( C.O. 0.0) # .21 ***CASUALTY*** ID: 6 IN LMK 5. PKF# .32 PK*# AT TGTPT 4 ( 0.0) 0.0) # .21 ***CASUALTY*** ID: 6 IN LMK 5. PKF# .32 PK*# AT TGTPT 4 ( 0.0) 0.0) # .21 **JUNK CAS.* ID: 2 AT ( 20.0) 50.0) TOTAL JUNK FURTHER DAMAGED # .022	AGZ = ( -5.5,	12.3,	
<pre></pre>			

				•			•	•	o •
<b>***</b>		÷	•	*		· · ·	92.63	*** **	57.2,
5999•		5999•		8998		5999•	1.1,	5999•	58.1,
• 6664		*666*		*666*		•6667	0000°°°	•6664	) + 25 - (
<***> BEGINNING REPLICATION 13. RND. NO. SEEDS * 1028936231. 281623302. 945264352.	>>> 1.600C UNIT FROM ID 2 AT TGF. PT. 13 HAD A LITE FAILURE AT TIME 1320.00 <<< >>> 1.000 UNIT FROM ID 3 AT TGT. PT. 16 HAD A LITE FAILURE AT TIME 1320.00 <<<  ZITIMERIX FINISHED REPLIC. 1%. CPUTIM= 10.229. TOP OF MEMORY ( ITOP ) = 5259C	<*** BEGINNING REPLICATION 19. RND. NG. SEEDS - 1943180064. 281628303. 1180910459.	>>> 1.000 UNIT FROW ID 2 AT TGT. PT. 13 HAD A LITE FAILURE AT TIME 420.0C <<< >>> 1.000 UNIT FROM ID 3 AT TGT. PT. 16 HAD A LITE FAILURE AT TIME 780.0C << >>> 1.000 UNIT FROM ID 3 AT TGT. PT. 16 HAD A LITE FAILURE AT TIME 1260.0O << xtimerx filished replic. 19. CPUTIM* 10.523. TOP OF MEMORY ( ITOP ) * 52590	<pre>&lt;***&gt; 8EGINNING REPLICATION 23. RND. NG. SEEDS * 266558477. 281628303. 302976001.</pre>	>>> 1.00G UNIT FROM ID 2 AT TGT. PT. 13 4AD A DEAD FAILURE AT TIME 180.00 <<< 22TIMERIZ FINISHED REPLIC. 20. CPUTIM= 10.943. TOP 3F MEMORY ( ITOP ) = 52590	<***> deginning replication 21. RND. NO. Seeds # 194592683C. 281628303. 350057194.	** EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.6; 40.6; 0.5 O.5 O.5 O.5 O.5 O.5 O.5 O.5 O.5 O.5 O	<pre>&lt;***&gt; BEGINNING REPLICATION 22. RNJ. NO. SEEDS = 911779125. 36268138E. 345583245.</pre>	>>> 1.00% UNIT FROM ID 2 AT TGT. PT. 13 HAD A LITE FAILURE AT TIME 121.0C <<<  ** EMPL. # (VULLEY) 2 ( 2). 4PN VN. 1. AT TIME 2CG.0L. DGZ = ( 0.0) 0.0) 0.0  ***CASUALTY*** ID: 2 IN LNK 1D. PKF* 30 PK** AT TGTPT 13 ( 20.0, 50.0) = .26  ***CASUALTY*** ID: 13 IN LNK 8. PKF* 1.0D PK** AT TGTPT 15 ( 60.0) = 100
					20	)7			

	40.5, 57.9, 0.0 )	66.6, 60.6, 0.0	30.0, 56.4, 0.0		46.9, 22.0, 0.0		29.2, 47.7, 0.6 1		31.9, 54.7, 0.0 ]		33.1, 63.2, 0.0 ]		26.8, 59.9, 0.0 ]		
1.00 1.00 1.00 1.00	0, 0.0 ) AGZ = ( = .18 .300c c.0000 = .19	ō	0, 0,00 AGZ = ( = 1,00 = 4,03 = 13	0000*3 30000*3	0.0 1	*3000 0.0000 * •06	. 0.0 ) AGZ = ( = .09 .141	•0000 • •0000	. 0.6 1 AGZ = ( = .06 098	. 0000 0.00000	. 0.0 ) AGZ = ( = .04 .009	*3000 0*6000 * *05	. 0.0 ) AGZ = ( 03 .075	.0000c c.0000 02	
16 ( 60.0), 60.0) 17 ( 60.0), 60.0) 17 ( 60.0), 60.0) 18 ( 60.0), 66.9)	DGZ = ( 0.0, 0.0 11 ( 26.0, 50.0) 0.,LITE) = C.0006 13 ( 20.0, 50.0)	303.00. DGZ = ( C.0. C.C. (DEAD,MED.,LITE) = 0.0000 G. TGTPT 13 ( 20.0, 50.0) =	G. DGZ = ( 0.5, 0.0 T 1C ( 2C.0, 50.0) T 1C ( 20.0, 50.0) T 11 ( 20.0, 50.0) JUNK FURTHER DAMAGEO =	TE) # .3000 20.0, 50.0)	0.0 ER DAM	(DEAD, MED., LITE) = 0.0000 TSTPT 13 ( 20.0, 50.0)	0. DGZ = ( C.C. 0.C T 11 ( 20.0, 50.0) JUNK FUPTHER DAMAGED =	20.03	DGZ = (	20.0, 50.0)	. DGZ = ( 6.0, 6.0) = 11 ( 26.6, 50.0) = JUNK FURTHER DAMAGED =	ED.,LITE) # 6.3000 13 ( 20.0, 50.0)	1. DGZ * (	.,LITE) . 13 ( 20	
LLG4S, PK S (DEAD,M 1.55 PK*# AT TGTPT 1.65 PK*# AT TGTPT 1.05 PK*# AT TGTPT	. 1. AT IIME 350.00. [F* .33 PK*# AT TGTPT I FOLLOWS. PK S (DEAD,ME [F* .33 PK*# AT TGTPT	1. AT TIME FOLLOWS. PK S 3.) PK*# AT	. AT TIME 300.0 1.00 PK*# AT TSTP 1.00 PK*# AT TSTP .30 PK*# AT TSTP 50.0). TUTAL	EM FOLLOYS, PK S (DEAD, ME PKF* .3J PK*# AT TGTPT	50.0).	TEM FOLLOYS. PK S (DEAD,ME PKF= .30 PK*# AT TSTPT	• AT TIME 360.0 • 30 PK*# AT TGTP 50.0). TOTAL	FDLLDYS, PK S (05AD,MEO,,LITE) 30 PK*# AT TGTPT 13 (	• AT TIME 360.06 • 3, 2K*# AT 16TPI 56.6). TOTAL	TEM FJLLOWS. PK S (DEAD, MED., LITE) PKF* .3U PK*# AT 1GTPT I3 (	. 31 TIME 300.05 .32 PK*# AT 15TPT 5C.5). TOTAL	FOLLOWS. PK S (DEAD, MED.,LITE)3. PK*# AT TGTPT 13 (	• AT TIME 330.00 • 30 PK*# AT TGTP1 50.0)• TOTAL	FOLLOWS. PK S (OSAD,MED 33 PK*4 AT TGTPT	
C* REPAIRABLE I 3 IN LWK 11. 1 12 IN LWK 7. 1 IN LWK 6.	2 ( 2). JPN NO. : 1 IN LUK 0. PK <>> REPAIRABLE ITER : 2 IN LNK 1C. FK	2 ( 2). JPN NU. <> REPAIRABLE ITEM 2 IN LNK 15. PK	2 ( 2) WPN NO. 1 9 IN L'4K is PKF. 1 L' IN LNK is PKF. 1 IN LNK 6. PKF. 1 IN LNK 6. PKF.	PAIRAGLE IT N LNK 10.	2) • 4PH 2 AT (	<pre>&lt;&gt; REPAIRABLE I 2 IN LHK i()</pre>	2 ( 2), WPN NO. 1 : 1 IN LNK 6, PKF= ID: 2 AT ( 23.5.5)	<> REPAIRABLE ITEM FOLLOUS. 2 IN LRK 10. PKF ** 30 PK	2 ( 2), 4PN NO, 1 : 1 IN LNK 6, PKF* ID: 2 AT ( 23.0),	<pre>&lt;&gt; REPAIRABLE I 2 IN LNK 10.</pre>	2 ( 2) 4PN HD. 1 : 1 IN LNK 6 PKF ID: 2 AT ( 25.3)	S REPAIRABLE ITEM FOLLOWS: 2 IN LNK 10. PKF. 30.3	** EMPL. # (VOLLEY) 2 ( 2). WPN NJ. I ***CASUALTY*** I J: I IN LNK 6. PKF= **JUNK CAS ID: 2 AT ( 29.5)?		
***CASUALTY*** ID: ***CASUALTY*** IO: ***CASUALTY*** ID:	** EMPL. * (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*** [D:	** EMPL. # (VOLLEY)  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:	***CASUALTY*** ID:	** EMPL. # (VOLLEY) 2 (JUNK CAS. In:	***CASUALTY*** ID:	** EMPL. # (VOLLET) 2 ( ***CASUALTY*** ID: 1 ) **JUNK CAS., ID:	***CASUALTY*** ID:	** EMPL. * (VOLLEY) ***CASUALTY*** ID: JUNK CAS	***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*** ID:JUNK CAS.	***CASUALTY*** ID:	** EHPL. # (YOLLEY) ***CASUALTY*** I): **JUNK CAS	***CASUALTY*** ID:	

<> REPAIPABLE ITEM FALLOWS, PK S (DEAD, MED., LITE) = 0.0005 .3000 0.0000

***CASUALTY*** 10: 2 IN LAK 10. PKF= .3) PK** AT TGTPT	¥ *¥ ¥	r tgtpt	13 (	20.03	50.01 =	.01				
** EMPL. # (VOLLEY) 2 ( 2). WPN ND. 1. AT TINE 363.0 ***CASUALTY*** ID: I IN LNK 6. PKF= .3.) PK*# AT TGTP	TIME PK*#	303.06. AT TGTPT	DG2 • (	20.02	50.03	.010.	AGZ - (	24.3,	30.5,	0.0
<> REPAIRASLE ITEM FOLLOWS, PK S (DEAD,MED, LITE) ***CASUALTY*** ID: 2 IN LNK 10, PKF* 350 PK** AT 15IPT 13 ( ** THREAT TO REPAIR OF .119 UNITS OF ID 2 AT COORDS 10.6, 10 PKS = 0.060, .330, .335, AND PN * .193 "EDIUM, PUT INTO MEDIUM JUNKPILE.	JLLDHS, PK S 36 PK*# A 2 AT COO 3 AND PN = (NTO MEDIUM .	(OZAD, ME 1 TSTPT 105 10 193 100KP 116	0.,LITE) = 13 ( 20.	20.0,	50.00 .3000	.01				
** EMPL. # (VOLLEY) 2 ( 2). WPN NO. 1. AT TIME 30).0	L. AT TIME	363.00.062	) * 290	0.00	0.0	0.0	AGZ = (	52.2,	45.70	0.0
<> REPAIRABLE ITEM FOLLOWS, PK S (DEAD ***CASUALTY*** ID: 2 IN LNK 10, PKF= ,33 PK*# AT 1GTP		S (DEAD,MED.,LITE) AT TGTPT 13 (	D.,LITE) 13 (	- C.1636 20.03, 50.0	50.0) = 3060	0000000				
** EMPL, # (VOLLEY) 2 ( 2). WPH NO. 1. AT TINE 303.0 ***CASUALTY*** ID: 1 IN LNK 6. PKF= .30 PK*# AT TGTP	. AT TIME	300.00.062 • AT TGTPT 11 (	-	20.02	50.03	60.1	V6Z ⋅ (	35.8,	57.9,	0.0
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS.PK S (DEAD ***CASUALTY*** ID: 2 IN LWK iv. PKF* .33 PK*# AT TGTP</pre>	JLLOWS. PK S .33 PK*# A	S (DEAD,MED,,LITE) AT TGTPT 13 (	0.,LITE) 13 (	20.09 50.02	000 .3000	0000-000			,	
** EXPL. * (VOLLEY) 2 ( 2). 4PN NO. 1. AT TIME 300.0	L. AT TIME	300.00.005	) - 290	60.0	46.0	0.0	AGZ = (	31.7,	15.9,	0.0
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD ***CASUALTY*** ID: 2 IN L4K 10. PKF* .30 PK*# AT TGTP</pre>		S (DEAD, MED., LITE) AT TGTPT 13 (	0.,LITE) 13 (	20.03	.3000 50.0)0	0000-000				
** EMPL. * ( VOLLEY) 2 ( 2). WPN NO. 1. AT TIME 300.0 ***CASUALTY*** ID: 1 IN LAK 6. PKF* .30 PK*# AT TGT*	. AT TIME	309.00. AT TGT®T	DGZ • (	20.05	50.03	.010.	) = 29V	36.3,	32.8,	0.0
** EMPL。# (VOLLEY) 2 ( 2). WPN NO. 1. AT TIME 300.0 ***CASUALTY*** ID: 1 IN L4K 0. PKF* .35 PK*# AT TGTP	AT TIME	300.0C. DGZ AT TGTPT 11		20.02	50.03	.010.	797 • (	34.2,	39.3,	•••
ZZTIMERZY FINISHEO REPLIC. 22. CPUTIM 11.433, TOP OF		TOP OF MENGAY	J	110P ) •	52590					
	1									
<*** BEGINNING REPLICATION 23. RMD. NO. SEEDS = 1947	SEEDS	1947364717.		414454806.	672843765	, Š	4999°	5999.	<b>***</b>	
>>> 1.JOO UNIT FROM ID 3 AT TGT. PT. 16 4AD A LITE	16 4AD		FAILURE AT TIME		121.06 <<<	¥				
ZZTIMERZZ FINISHED RFPLIC. 23. CPUTIM= 11.387. TOP 9F		TOP OF HEMORY ( ITOP )	MORY ( I	TOP ) •	52590					
<***> BEGINAING REPLICATION 24. RND. NO. STEDS - 339	Seeds	339A54612.		54306496.	877329013	ů,	,0664	5999.	<b>*</b>	
>>> 1.000 UNIT FROM ID 3 AT TGT. PT. 15 4AD A LITF FAILURE AT TIME		LITE FA	ILURE AT		121.00 <<<	×				
** EMPL. # (VOLLEY) 2 ( 2). 4PN NG. 1. AT TIME 360.00.  ** THREAT TO REPAIR OF .119 UNITS OF ID 3 AT CODRDS 10  ** THREAT TO REPAIR OF .109 UNITS OF ID 3 AT CODRDS 10  PKS * J.CO. 30JJ AND RN * 207  RD IUM. PHI INIT MEDIUM JUNKPILE.	AT TIME 3 AT CODE 5 AND RN COTONIC CONTO MEDIUM CO	363.00.062 105 10.03.10.03.10.03.10.03.10.03.10.03.03.03.03.03.03.03.03.03.03.03.03.03	. DGZ # ( 10.0; 16.0 F.	င်ပ ပ ၁	69.0	0.0	) = Z9V	11.4, -	-33.8,	0.0

11.933. TOP OF MEMORY ( ITOP ) = 52590

ZZTIMERZZ FINISHED REPLIC. 24. CPHTIM=

	2999° <***>	3.6,	<***> *6665	<***> *6665		15.69 0.C	3, 49.4, 0.0
	66	-10.4,			31.9	( 57.39	( 40.8,
• 6664	•6664	. AGZ =	•6664	•666\$	0.0 ) AGZ =00 18 60 0000 30	0.0 ) AGZ = 0 0.0000 .21	0.0 ) AGZ *
121.0C <<< 900.0C <<< 52590	. 627966403.	0.65 0000 0000 0000 0000 0000 0000 0000	• 655¢ð1068• 5259C	. 1613636971.	40.6, 56.0) = 1 50.0) = 360.0 C.000 50.0) = 60.00 60.00 60.00 60.00 60.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 = 300.00 60.00 =	3 40.62	40°0, 50°0) =
). 445217586. JRE AT TIME PRE AT TIME PY ( ITOP ) =	5. 445217586.	( 5.0 E) = 0 26.02 AT TIME AT TIME	2. 445217586. RY ( ITOP ) •	9. 44521758£.	20.03 20.03 20.03 20.03 20.03 6.03	,0, ,0,03	Z = ( 40.0, 1 ( 20.9,
A LITE FAILURE A LITE FAILURE A LITE FAILURE TOP OF HEMORY (	<b>=</b> 126197256。	350.00. DGZ = S (DEAD, HED., LIT AT TSTPT 13 (A LITE FAILURE A LITE FAILURE TOP DF MEMORY (	* 15482722C2. TOP OF MENORY	<b>=</b> 1171535499•	1.00. DGZ = ( AT TGTPT 9 ( AT TGTPT 11 ( AT TGTPT 12 ( S (DEAD, MED., LITE) AT TGTPT 13 ( S (DEAD, MED., LITE) AT TSTPT 16 (	1.00. UGZ = ( S (NSAD,MED.,LITE) AT TGTPT 16 (	1.00. DGZ AT TGTPT 11
PT. 13 HAD PT. 13 HAD 12.256.	). NO. SEEDS	ND. 1. AT TIME ITEM FOLLOWS. PK S TGT. PF 13 HAD A TGT. PT. 16 HAD A TGT. PT. 12.661. Ti	0. ND. SEEDS	D. N.S. SEEDS	. PKF 1.33 PK*# . PKF 3.30 PK*# . PKF 1.00 PK** ITEM FOLLOWS. PK ITEM FOLLOWS. PK ITEM FOLLOWS. PK	1. AT TIME FOLLOWS. PK F= .33 PK*k	1. AT TIME F= .30 PK*#
25. RND. 2 AT TGT. P' 2 AT TGT. P' 25. CPUTIM=	N 20. RND.	AIRABLE ITEM LNK 13. PKF A T TGT. 3 AT TGT. 2 AT TGT. 3 AT TGT.	IN 27. RND.	IN 23. P.ND.	1). JPN .0K 12 .0K 12 .0K 3 .0K 3 .0K 12 .0K 13 .0K 13	REPAIRABLE ITEM FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER FISTER	1 IN LAK 6. PKF=
SEGINNING REPLICATION  1.000 UNIT FROM ID  1.000 UNIT FROM ID  XX FINISHED REPLIC.	3EGINNING REPLICATION	# (VOLLEY) 2 ( 2). WPH  <> REPAIRABLE 3  ALTY*** ID: 2 IN LNK 130  *714 UNIT FROM ID 3 AT 1 1.JGO UNIT FROM ID 3 AT 1  : FINISHED REPLIC. 26. CPI	BEGINNING REPLICATION Zz finished Replic.	BEGINNING REPLICATION		<b>~</b> \$	-
THE R	<***> SEGININ	##CASU	<***> BEGINNIN 22TIMERZZ FINI	<***> aeginhi	** EMPL. * (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	EMPL. # (VOLLEY) ***CASUALTY*** ID:	:EMPL. # (VOLLSY) ***CASUALTY*** ID:
* ^	*	* ^ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	* \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	₹	*** * *	* *	*

		•			ċ		ċ		•		•		•			•			ė	
		41.8,			46.39		25.7,		48.5,		46.8,		45.4,			24.75		•	46.49	
		66.			89.95		76.4,		.17.77		105.05		23.2,			29.2,			29.0,	
<pre></pre>	<pre></pre>	** EMPL. * (VOLLEY) 1 ( 1). WPN NJ. 1. AT TIME 1.00, DGZ = ( 40.0, 40.0, 0.0) AGZ ** (	<pre></pre>	<pre></pre>	** EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 1.00. DG2 = ( 40.0, 40.0, 0.0) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITF) = 0.0000 .3000 0.000  ***CASUALIY*** ID: 3 IN LNK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .07</pre>	** EMPL. * (VOLLEY) I ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	<pre>&lt;**CASUALTY*** ID: 3 IN L4K 11. PKF = .33 PK*# AT TGTPT 16 ( 60.C, 63.0) = .05</pre>	** EMPL. # (VOLLEY) 1 ( 1). 4PH NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (JUNK CAS ID: 3 AT ( 50.0). TOTAL JUNK FURTHER DAMAGED = .112	<pre></pre>	** EMPL. # (VOLLEY) 1 ( 1). 4P! 40. 1. AT TIME 1.00. DGZ = ( 4C.C. 43.C. 0.0 ) AGZ = (	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (OEAD,MED.,LITE) = 0.0000 .3000 0.0000  ***CASUALTY*** ID: 3 IN LVK 11. PKF= .3) PK** AT TGTPT 16 ( 60.0, 60.0) = .02</pre>	** EMPL. # (VOLLEY) 1 ( 1). 4PH NO. 1. AT TIME 1.3G. DGZ = ( 40.C). 40.C). 0.0 ) AGZ = ( ***CASUALTY*** ID: 1 IN LNK 6. PKF= .30 PK** AT TGTPT 11 ( 20.C). 5C.0) = .09JUNK CAS ID: 2 AT ( 26.0). 5J.0). TJTAL JUNK FURTHER DAMAGED = .107	<pre>&lt;&gt; REPAIRABLE ITEM FOLLO4S, PK S (nEAD,MED,LITE) = .300C C.0000 0.0000 ***CASUALTY*** ID: 2 IN LNK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.C, 50.0) = .10</pre>	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.0000 .3000 0.0000 ***CASUALTY*** ID: 3 IN L'1K II. PKF= .30 PK*# AT TGTPT 16 ( 60.6, 60.0) = .02</pre>	** EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 1.09. DGZ = ( 40.0, 40.0, 60.0) AGZ = (	<pre>&lt;&gt; qepalqable item follows, pk S (OEAD,MED,LITE) = C.OCOO .3000 C.0000 ***CASUALTY*** ID: 2 IN LNK iv. Pkf= .30 Pk*# AT TGTPT 13 ( 20.0, 50.0) = .07</pre>	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK'S (DEAD,MED,LITE) = 0.0000 .3000 0.0000 ***CASUALTY*** ID: 3 IM LHK 11. PKF= .35 PK*# AT TGTPT 16 ( 60.0, 60.6) = .51</pre>	** EMPL. # (VOLLEY) 1 ( 1). WPH NO. 1. AT TIAE 1.CC. BGZ # ( 4C.C.) 49.C. 0.0 ) AGZ # ( ***CASUALTY*** ID: 1 IN LNK 6. PKF# . 33 PK*# AT TGTPT 11 ( 20.C. 50.0) # .76	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK &gt; (DEAD,MED.*LITE) = .3000 C.0000 0.0000 ***CASUALTY*** ID: 2 IN L'K 10. PKF* .3J PK** AT 1GTPT 13 ( 20.3), 56.G) = .05</pre>
										211										

<pre>&lt;&gt; REPAIMABLE ITEM ***CASUALTY*** ID: 3 IN L4K 11. PK</pre>	FOLLOYS. PK S F* .30 PK*# AI	(DEAD, MED., LITE) = C.3000 .3300 (TGTPI 16 ( 60.0) = .01	0.0000			
** EMPL. # (VOLLEY) I ( 1). JPH ND.	O. 1. AT TIME	1.00. DGZ = ( 40.03, 40.05	59 A GZ = (	19.9,	16.6,	0.0
<pre>&lt;&gt; REPAIRABLE ITEM ***CASUALTY*** ID: 2 IN L'!K lu. PK</pre>	FOLLOWS, PK S F* ,3J PK*# AT	(DEAD, HED., LITE) = 0.30u0 .3000 ( TGTPT 13 ( 2C.3, 50.0) = .04	2,000.0			
** EMPL. # (VOLLEY) 1 ( 1). WPN ND. ***CASUALTY*** ID: 1 IN LNK 6. PKI ***CASUALTY*** ID: 2 AT ( 2).	1. AT TIME 13U PK*# AT .0, 50.0).	1.00. DGZ = ( 40.0. 40.0. TGTPT 11 ( 20.0. 50.0) = . TOTAL JUNK FURTHER DAMAGED =	0.0 ) AGZ = ( .04 .078	33.6,	50.7,	0.0
<pre>&lt;&gt; REPAIPABLE ITEM ***CASUALTY*** ID: 2 IN LNK lo. PK</pre>	FOLLOVS. PK S F* .33 PK*# AT	10EAD, MED, , LITE) . 3000 0.0000 TGTPT 13 ( 20.0, 50.0)	0.0000			
<pre>&lt;&gt; AEPAIRABLE ITEH ***CASUALTY*** ID: 3 IN LNK II. PKI</pre>	FOLLOWS. PK S F* .30 PK*# AT	(DE4D,MED,JLITE) = 0.0000 .3000 TGTPT 16 ( 60.6, 60.0) = .01	C, 4000			•
** EMPL. # (VOLLEY) 1 ( 1). WPH NG.	N. 1. AT TIME	2.06. DGZ = ( 40.03 46.03	.C ) AGZ = (	60.79	54.7,	0.00
<pre></pre>	H FOLLOWS. PK S KF* .3.1 PK** AT KF* 1.0.0 PK** AT KF* 1.0.1 PK** AT 0.0.7 50.0).	(OEAD, MED., LITE) # 0.060C .3000 TGTPT 13 ( 20.0, 50.0) # . TGTPT 14 ( 60.0, 60.0) # . TGTPT 15 ( 60.0, 60.0) # .	. 6.0000 02 40 00 00		•	
<pre></pre>	LE ITEM FOLLOWS, PK S 11. PKF= .30 PK*# AT 7. PKF= 1.00 PK*# AT 6. PKF= .30 PK*# AT	(DEAD) TGTP1 TGTP1 TGTP1	0000000			
** EMPL. # (VOLLEY) 1 ( 1). 4PH NO.	0. 1. AT TIME	1.00. 06Z = ( 40.0, 40.6, 0	0.0 ) AGZ = (	85.5,	22.0,	0.0
<pre>&lt;&gt; <pre>&lt;&gt; &lt; /pre></pre>	FOLLOWS. PK S == .31 PK*# AT	(0EAD, MED., LITE) = 0.0000	0.000			
** EMPL. * (VOLLEY) 1 ( 1). 4PN NO.	U. 1. AT TIME	1.60. 062 = ( 40.0, 40.c, 0	) - Z9Y ( 0"	46.3,	14.6,	0.0
<pre>&lt;&gt; A##CASUALTY*** ID: 2 IN LNK lo. PK</pre>	FOLLO4S. PK S F* .3J PK*# AT	DEAD, MED., LITE) - C.2006 TGTPT 13 ( 20.0, 50.0)	6.6063			
<pre>&lt;&gt; REPAIRABLE ITCH ***CASUALTY*** ID: 3 IN LNK 11. PK</pre>	FOLLONS. PK S F= .3) PK*# AT	S (NEAD,MED,,LITE) # 0.3000 .3300 AT TGTPT 16 ( 60.0, 63.0) # .0	0000*0 00			
** EMPL. # (VOLLEY) 1 ( 1). WON NJ. ***CASUALTY*** ID: 1 IN LNK 6. PK JUNK CAS. ID: 2 AT ( 20	1. AT TIME F= .3) PK*# AT .0, 50.0).	1.00. DGZ = ( 40.0, 40.0, 15TPT 11 ( 20.0, 50.0) = .	0.0 ) AGZ = ( .03 .054	33.72	55.0,	0.0
<pre>&lt;&gt; KEPAIPABLE ITER ***CASUALTY*** IO: 2 IN LNK 10. PK</pre>	FOLLOWS. PK F= .3v oK*#	S (DEAD, MED, LITE) * .3000 C.000C AT TGTPT 13 ( 20.0, 50.0) * .0	03.000			
** EMPL. # (VOLLEY) 1 ( 1). JPN NO.	O. 1. AT TIME	1.00. DGZ = ( 40.0, 40.0, 0	) . Z9V ( 0.	25.4,	19.2,	0.0
<pre>&lt;&gt; REPAINABLE ITEM ***CASUALTY*** ID: 2 IN LUK 10. PK</pre>	FOLLOWS. PK S F* .31 PK*# AT	(PEAD,MED.,LITE) = 0.06.3C .3000 (	0.0000		•	•
** EMPL. # (VOLLEY) 1 ( 1). 4PN NG.	9. 1. AT TIME	0 40.09 40.09 1 E Z 90 40.09	) - Z9Y ( 0*)	36.7,	24.42	0.0
<pre>&lt;&gt; <pre>&lt;&gt; <pre>&lt;**CASUALTY*** ID:</pre></pre></pre>	FOLLOWS. PK S F= .3) PK*# A1	(DEA9,MED.,LITE) = 0.0000 .3000 (	0,000 o			
** EMPL. * (VOLLET) 1 ( 1). WPN NO.	O. 1. AT TINE	1.00. 06Z = ( 40.0, 40.0,	) = Z9V ( 0.	44.13	33.3,	0.0

	0	0.0	0.0	0.0	0.0	0.0	•			0		0.0		÷ 0 • 0		
	48 .89 .89 .89	50.2,	45.41	53.1,	45.5,	29.8,	÷ 61		*	43.83		16.5,		46.55		
	46.82	26.09	55.9,	54.3,	48.0.	26.0,	-16.9,		\$999	& & &		-13.4,		22.19		
<pre>&lt;**CASUALTY*** ID: 2 IN L4K ic. PKF</pre>	** EMPL. # (VOLLEY) 1 ( 1), APN YO. 1. AT TIME 1.00. DGZ = ( 46.0, 40.0, 0.0) AGZ = ( ***CASUALTY*** ID: 2 IN LNK 10. PKF* .3J PK*# AT TGTPT 13 ( 20.0, 50.0) = .00 ***CASUALTY*** ID: 1 IN LNK 10. PKF* .3J PK*# AT TGTPT 13 ( 60.0, 60.0) = .00 ***CASUALTY*** ID: 1 IN LNK 6. PKF* .3i PK** AT TGTPT 18 ( 60.0, 60.0) = .03	1 ( 1), 4PN NJ, 1, AT TIME 1,000. ( 1 IN LNK 0, PKF* ,33 PK** AT 1G1PT	** EMPL, # (VNLLEY) 1 ( 1), YPN NO, 1, AT TIME 1,0%, DGZ * ( 46.C, 40.0, 0.0) AGZ ¤ ( ***CASUALTY*** ID: 1 IN LNK 6, PKF* ,3% PK** AT TGTPT 16 ( 60.0, 60.0) * .02	** EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0. 40.0. 40.0.	** EHPL, # (VOLLEY) 1 ( 1), YPN NO, 1, AT TIME 1,00, DGZ = ( 40,0, 40,C, 6.0) AGZ = ( ***CASUALTY*** ID: 1 IN LYK 6, PKF= ,3,9 PK*# AT TGTP? 18 ( 60,0, 60,0) = ,01	** EMPL。 # (VOLLEY) 1 ( 1). YPN NO. 1. AT TIME 1.00. DGZ = ( 4G.G. 40.C. 0.C.) AGZ = (	** EMPL. # (VOLLEY) 2 ( 2), 4PN NG. 1. AT TIME 300.09. DGZ * ( 3.0, 0.0, 0.0) AGZ * ( ***CASUALTY*** ID: 4 IN LNK 4. PKF* .39 PK*# AT TGTPT 2 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 5 IN LNK 95. PKF* .39 PK*# AT TGTPT 3 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK*# AT TGTPT 4 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK*# AT TGTPT 4 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK*# AT TGTPT 4 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK*# AT TGTPT 4 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK*# AT TGTPT 4 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK** AT TGTPT 4 ( 0.0, 0.0) * .30  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .39 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .30 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .30 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5. PKF* .30 PK** AT TGTPT 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY*** ID: 6 IN LNK 5.00  ***CASUALTY**** ID: 6 IN LNK 5.00  ***CASUALTY************************************	ZZIINERZZ FINISHED REPLIC. 28. CP/JIM= 13.228. TOP OF MEMORY ( ITOP ) = 52590	<pre>&lt;***&gt; BEGINNING REPLICATION 29. RND. NO. SEEDS = 59567837. 69134011. 471112141. 4999.</pre>	** EMPL. * (VOLLEY) 2 ( 2). WPN NO. 1. AT TIME 300.60. DGZ = ( 6.6, 0.6). 0.6) AGZ = ( ** EMPL. * (VOLLEY) 2 ( 2). WPN NO. 1. AT TIME 3.00.60. DGZ = ( 50.6). SO.0) = 1.00  ***CASUALTY*** ID: 1 IN Lik 6. PKF= 3.0 PK** AT TGTPT 11 ( 26.0) 50.0) = .18  ***CASUALTY*** ID: 9 IN LNK 3. PKF= 1.00 PK** AT TGTPT 12 ( 20.0) 50.0) = .60	<pre>&lt;&gt; REPAIRABLE ITE* FOLLOWS. PK S (DEAD.MED.,LITE) = .3GGG C.0000 C.CGGG ***CASUALTY*** ID: 2 IN LMK 10. PKF* .30 PK*# AT TGTPT 13 ( 20.0) 50.0) = .30</pre>	** EMPL. # (VOLLEY) 2,( 2). 4PR NO. 1. AT TIME 301.10. DGZ = ( 6.0) 0.0, 0.0, 0.0) AGZ = ( -	<>	** EMPL. # (VOLLEY) 2 ( 2). 4PN ND. 1. AT TIME 390.CD. DGZ * ( 0.0, 0.0, 0.0) AGZ * ( ***CASUALTY*** [D: 1 IN Lik 5. PKF* 1.60 PK** AT TGTPT 11 ( 20.6, 50.0) * .42 ***CASUALTY*** [D: 2 AT ( 20.0, 50.0). TDTAL JUNK FURTHER DAMAGED * .210	<pre>&lt;&gt; REPAIRABLE ITEM FJLLGAS. Ph S (DEAD,MED.,LITE) = 1.00000 0.0000 0.0000 ***CASUALTY*** ID: 2 IN LHK 10. PKF= 1.00 PK** AT TGTPT 13 ( 25.0) 50.0) = .49</pre>	AND STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF STATE OF

	** EMPL. # (VOLLEY)JYNK CAS.	2 ( 2), WPN NG. 1. AT TIME 300.00. DGZ = ( G.O., 0.0., 0.0) ID: 3 AT ( 66.3, 60.0). TOTAL JUNK FURTHER DAMAGED = .090	AGZ . (	54.32	46.13	0.0
	***CASUALTY*** [D: ***CASUALTY*** [D:	<pre>&lt;&gt; REPAIRABLE ITEM 3 IN LNK 11. PK 1 IN LNK 6. PK</pre>	0			
<del></del>	** EMPL. # (VOLLEY)	2 ( 2). APH ND. 1. AT TIME 300.00. DGZ = ( 5.0, 0.0, 0.0)	AGZ . (	24.3,	58.9,	0.0
	***CASUALTY*** ID:	<pre>&lt;&gt; <ppairable (="" (dead,med.,lite)="" *="" .15<="" .3.="" .3000="" 0.0000="" 0.6006="" 11.="" 16="" 3="" 60.0)="" 60.0,="" :="" at="" follows.="" in="" item="" lnk="" pk="" pk**="" pkf*="" pre="" s="" tgtpt=""></ppairable></pre>	90			
-	** EMPL. # (VOLLEY)	2 ( 2). HPN NO. 1. AT TIME 303.03. 062 = ( 0.0, 0.6, 0.6)	AGZ . (	36.1,	34.1,	0.0
	***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS, PK S (DEAD, MED., LITE) = 0.0000 0.3000 c. 3 IN LNK 11, PKF= .3J PK*# AT TGTPT 16 ( 60.0, 60.0) = .10	0000			
-	** EMPL. # (VOLLEY)	2 ( 2). WPN NO. 1. AT TIME 300.00. DGZ = ( 6.6, 0.0, 0.0)	AGZ = (	48.9,	29.65	0.0
	***CASUALTY*** IU:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOYS. PK S (DEAD,MED.,LITE) * 0.0000 .3000 0.0000 : 3 IN L'4K 11. PKF* .30 PK*# AT TGTPT 16 ( 60.0, 60.0) * .07</pre>	00		•	
•	** EMPL. * (VOLLEY)	2 ( 2). 4PN NO. 1. AT TIME 300.00. 06Z * ( 0.0, 0.0, 0.0)	AGZ = (	18.5,	36.45	0.0
	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PY. S (DEAD, MED., LITE) = 0.0000 .3000 0.C000 : 3 IN LNK _1. PKF* .3) PK*# AT TGTPT 16 ( 60.0, 60.0) = .05</pre>	001			•
•	** EMPL. # (VOLLEY)	2 ( 2). 4PN ND. 1. AT TIME 300.00. DGZ = ( 0.C, 0.0, 0.0)	AGZ = (	59.4,	22.7,	0.0
214	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOJS, PK S (DGAD,MED,LITE) = C.OLOC .300C 0.0000 : 3 IN LNK 11, PKF= .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .04</pre>	00			
-	** EMPL. # (VOLLEY)	2 ( 2). MPN NO. 1. AT TIME 303.09. DGZ = ( 0.0, 0.0, 0.0)	) = Z9¥	56.7,	19.4,	0.0
	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = G.OCCO .3000 C 3 IN LYK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .02</pre>	0000•			
-	** EMPL. # (VOLLEY)	2 ( 2). 4PH NO. 1. AT TIME 360.00. 06Z = ( 0.0, 0.0, 0.0)	) * 29¥	36.5,	13.6,	0.0
	***CASUALTY*** I9:	<> REPAIRABLE ITEY FULLOHS. PK S (DEAD, MED., LITE) = G.30GG C.0000 : 3 IN LNK 11. PKF= .3) PK** AT TGTPT 16 ( 6u.S., 6G.0) = .02	•3000			
~	** EMPL. # (VOLLEY)JUNK CAS.		AGZ. • (	56.2,	21.0,	0.0
	***CASUALTY*** 10:	<> REPAIRABLE ITEM FOLLCHS. PK S (DEAD! MED., LITE) = 3 IN LNK 1 OKF * .30 PK*# AT TGTPT 16 ( 60.	00			
-	** EMPL, # (VILLEY)  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:	2 ( 2), WPN NO. 1. AT TIME 30J.CU. DGZ = ( J.G. 0.C. 0.C.) : 4 IN LNK 4. PKF= .3, PK*# AT TGTPT 2 ( J.G. 0.0) = .30 : 5 IN LNK 95. PKF= .3J PK*# AT TGTPT 3 ( G.G. 0.0) = .30 : 6 IN LNK 5. PKF= .3J PK** AT TGTPT 4 ( 0.0) = .30	) - Z9Y	7.0,	18,5,	0.0
-	** EMPL. # (VULLEY)	2 ( 2). 4PN NO. 1. AT TIME 3CO.09. 06Z * ( 0.0, 0.0, 0.0)	AGZ * (	38.9,	25.5,	0.0
	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLGUS. PK S (DEAD,MED.,LITE) = 0.00000 .3000 0 : 3 IM LUK 11. PKF= .3. PK** AT TGTPT 16 ( 6G.0, 60.0) = .01</pre>	0000			•
-	** EMPL. # (VOLLEY)	2 ( 2). 4PN NG. 1. 4T TILE 300,00. PGZ = ( 0,0, 0,0, 0,0, 0,0)	AGZ = (	43.64	18.2,	0.0
	***CASUALTY*** 10:	<> REPAIRABLE ITEM FOLLDWS, PK S (DEAD, MED., LITE) = 0.000C .3000 G : 3 IN LNK 11. PKF* .3.3 PK** AT TGTPT 16 ( 60.0, 60.0) = .01	0000			
4	** EMPL• # (VOLLEY)	2 ( 2), WPH HO, 1, AT THE 306.06. DGZ * ( 5.6, 0.6, 0.6)	) = Z9V	-8.7,	17.0,	0.0

	0.0	0.0	•		0.0	0.0			٠,			0.0		
	32.5,	50.1,	•		53.0,	43.6,		<b>*</b>			<b>*</b>	83.3,		
	64.1,	66.99	,		49.21	60.49		5999.			5999•	24.15		,
1: 4 IN LNK 4. PKF= .35 PK*# AT TGTPT 2 ( 0.0, 0.0) = .21 1: 5 IN LNK 75. PKF= .3) PK*# AT TGTPT 3 ( 0.0, 0.0) = .21 1: 5 IN LNK 5. PKF= .30 PK*# AT TGTPT 4 ( 0.0, 0.0) = .21	2 ( 2), 4PN NO, 1, AT TIME 300,00, DGZ = ( 0.0, 0.0, 0.0, 0.0) AGZ = ( <	2 ( 2), 4PN NO. 1. AT TIME 300,00. DGZ = ( 0.0, 0.0, 0.0, 0.0) AGZ = ( 66.9 IN LNK 3. PKF= 1.07 PK*# AT 15TPT 14 ( 60.0, 60.0) = .40 13 IN L'4K 8. PKF= 1.07 PK*# AT 1GTPT 15 ( 60.0, 60.0) = 1.00 10: 3 AT ( 60.0, 60.0). TOTAL JUNK FURTHER DAMAGED = .207	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = .3000 6.0000 0.0000 : 3 IN LNK 11. PKF= .30 PK*# AT TOTPT 16 ( 60.0) = .00 : 12 IN LNK 7. PKF= 1.00 PK*# AT TOTPT 17 ( 65.0) 60.0) = 1.00 : 1 IN LNK 6. PKF= .30 PK*# AT TOTPT 18 ( 60.0) 60.0) = .08 : 1 IN LNK 6. PKF= .30 PK*# AT TOTPT 18 ( 60.0) 60.0) = .08</pre>	<pre></pre>	2 ( 2). 4PN NO. 1. AT TIME 360.00. DGZ = ( 0.0, 0.0, 0.0, 0.0) AGZ = ( 49.2 1 IN LNK 6. PKF= .30 PK*# AT TGTPT 18 ( 60.0, 60.0) = .06	2 ( 2). WPN NO. 1. AT TIME 300.00. DGZ = ( C.O. 0.C. 0.C. 0.0) AGZ = ( 64.0 : 1 in LMK 6. PKF= .3) PK*# AT TGTPT 18 ( 60.0. 60.0) = .34	) REPLIC. 29. CPJTIM« 13.535. TOP OF MEMORY ( ITOP ) . 5259C	REPLICATION 33. RND. NO. SEEDS = 1278326123. 69134011. 2085729072. 4999. 5999	FROM ID 2 AT TGT. PT. 13 HAD A LITE FAILURE AT TIME 121.0G << FROM ID 2 AT TGT. PT. 13 HAD A LITE FAILURE AT TIME 900.CO << FROM ID 3 AT TGT. PT. 16 HAD A MED FAILURE AT TIME 1380.CC <<<	REPLIC. 30. CPUTIM= 13.824. TOP DF HENDPY ( ITOP ) = 52590	PEPLICATION 31. RND. NO. SEEDS = 208959717C. 69134011. 2089511501. 4999. 5999	1 ( 1). WPH NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 24.1,	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 0.0000 .3000 0.0000 :: 2 in lnk lo. pkf= ,3) pk*# at tgtpt</pre>	<pre>&lt;&gt; REPAISABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.000C .300C 6.6000 : 3 IN LMK 11. PKF= .3.0 PK*# AT TGTPT 16 ( 60.0, 60.0) = .3.0  : 5 IN LMK 95. PKF= .3.0 PK*# AT TGTPT 19 ( 20.0, 80.0) = .3.0  : 8 IN LNK 13. PKF= 1.0.0 PK*# AT TGTPT 20 ( 20.0, 80.0) = 1.0.0  : 10 IN LNK 95. PKF= 1.0.3 PK*# AT TGTPT 21 ( 20.0, 80.0) = 2.00</pre>
***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. * (VOLLEY)  ***CASUALTY*** 10	** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: *** FMD: // // // // // // // // // // // // //	***CAS	** EMPL. # (VOLLEY) ***CASUALTY*** ID:	** EMPL. # (VDLLEY) ***CASUALTY*** ID	ZZIMERZZ FINISHED	<***> BEGINNING RE	>>> 1.000 UNIT >>> 1.000 UNIT L.600 UNIT	ZZTIMERZZ FINISHED	<pre>&lt;*** BEGINNING BE</pre>	** EMPL. # (VOLLEY)	***CASUALTY*** IR	***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:
							215							

** EMPL. * (VOLLEY)	1 ( 1). WPN NO. I. AT TIME 1.00. DGZ = ( 40.00, 40.00, 0.0 ) AGZ = (	90.7, 78.8,	0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) . 0.0000 .3000 G.0000 3 in lnk 11. PKF30 PK*# at TGTPT 16 ( 60.0, 60.0)21		
** EMPL. # (VOLLEY)	1 ( 1). HPH NO. 1. AT TIME 1.00. 0GZ = ( 40.0, 40.0, 04C) AGZ = (	95.2, 88.2,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 0.0000 .3660 G.6600 3 IN LNK 11. PKF= .33 PK*# AT TGTPT 16 ( 60.0, 60.0) = .15</pre>		
** EMPL. # (VOLLEY)	1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	38.1, 100.0,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM F7LLOWS. PK S (DEAD,MED.,LITE) * 0.0000 .3000 0.0000 3 IN LHK 11. PKF  .33 PK*# AT TGTPT 16 ( 60.3, 60.0) * .10</pre>		
** EMPL. # (VOLLEY)	1 ( 1). 4PN NO. 1. AT TIME 1.00. 062 = ( 40.6, 40.6, 0.0) AGZ = (	74.4, 109.3,	0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS, PK S (DEAD, MED, LITE) = 0.0000 .3000 0.0000 3 IN LNK 11. PKF .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .07		
** EMPL. # (VOLLEY)	1 ( 1), 4PN NO. 1. AT TIME 1.0G. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	75.3, 97.0,	. 0.0.
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK S (DEAD, HED., LITE) = 0.3000 .3000 0.COGO 3 IN LNK 11. PKF= .3J PK*# AT TGTPT 16 ( 60.0, 60.0) = .05</pre>		
** EMPL. # (VOLLEY)	1 ( 1). WPN NJ. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 1	107.9, 76.5,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK S (DCAD, MED., LITE) = 0.0000 .3000 0.6000 3 IM LNK 11, PKF= .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .04</pre>		
** EMP L. # (VNLLEY)	1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ = ( 40.6, 40.6, 0.6) AGZ = ( ID: 3 AT ( 56.0, 60.0). TOTAL JUNK FURTHER DAMAGED = .275	65.7, 83.2,	0.0
***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FDLLUWS. PK S (DEAD, MED., LITF) = .3000 C.0000 0.C000 3 IN LNK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0) = 60.0 = .02 1 IN LNK 6. PKF= .30 PK*# AT TGTPT 18 ( 60.0, 60.0) = .12</pre>		
** EMPL. # (VOLLEY)	1 ( 1). WPN ND. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	81.6, 88.9,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED./LITE) * 0.000C .3000 0.CC00 3 IN LNK 11. PKF* .33 PK*# AT TGTPT 16 ( 60.0, 60.0) * .02</pre>		
** EMPL. # (VOLLEY)	1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	52.1, 104.1,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK S (DEAD,MED,,LITE) = 0.0000 .3000 0.0000 3 IN LMK ll. PKF= .3.) PK*# AT TGTPT l6 ( 60.0, 60.0) = .01</pre>		
** EMPL. # (VOLLEY)	1 ( 1). WPN NO. 1. AT TIME 1.30. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	28.2, 93.9,	0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 0.000C .3000 0.C000 2 IN LHK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.0, 50.0) = .21		
***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIDABLE ITEM FDLLUWS. PK S (DEADAMED.*LITE) = 0.0C00 .300C C.6000 3 IN LNK 11. PKF= .33 PK*# AT TGTPT 16 ( 60.0, 60.0) = .01 5 IN LNK 95. PKF= .30 PK*# AT TGTPT 19 ( 20.0, 80.0) = .21</pre>	•	•
** EMPL. # (VOLLEY)	1 ( 1), 4PN NJ, 1, AT TIME 1,00, DGZ = ( 40,6, 40,6, 40,6, 3,0) AGZ = (	32.2, 78.3,	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE TTEM FOLLOWS. PK S (DEAD,MED.,LITF) = C.0000 .3000 C.C000 2 IN LNK i.). PKF= .3J PK*# AT TGTPT 13 ( 20.0, 50.0) = .15</pre>		
***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 0.0000 .3000 C.CCOO 3 IN LNK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .01 5 IN LNK 95. PKF= .30 PK*# AT TGTPT 19 ( 20.0, 80.0) = .15</pre>		

THE PROPERTY STATES OF THE STATES OF THE STATES OF THE STATES OF THE STATES OF THE STATES OF THE STATES OF THE

0.0	•	••	0.0		0.0	•			0 0	0.0	0.0
97.8,	•	92.29	82.5,		63.4,	•		<b>*</b>	1.7	6. 6.	-4-7,
59.2,	,	85.83	92.8,		111.8,			5999•	75.4,	2.7.	16.6,
i. AT TIME 1.0C. DGZ = ( 40.0, 40.0	33 PK*# AT TGTPT 16 ( 60.0) 60,5; z .00	1. AT TIME 1.60. 06. = ( 46.0, 40.6, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0, 01.0,	F# .30 PK## AI 161PI 16 ( 60.0) 60.0) # .00  1. AT TIME 1.00. DGZ # ( 40.0) 40.0, 0.0 ) AGZ # (	TEM FOLLOWS. PK S (DEAD, MED., LITE) = 0.0000 .3000 0.0000 PKF= .3.) PK*# AT TGTPT 16 ( 60.0, 60.0) = .00	1. AT TIME 300.00. DGZ = ( 0.0, 0.0, 0.0, 0.0) AGZ - ( 1	TEM FOLLOWS, PK S (DEAD,MED,,LITE) = 0.0000 C.0000 .3000 PKF= .30 PK*# AT TOTPT 16 ( 60.0, 60.0) = .07 GT. PT. 16 HAD A LITE FALLURE AT TIME 840.00 <<< GT. PT. 13 HAD A MED FALLURE AT TIME 1140.00 <<<	- 14.477. TOP OF MEMORY ( ITOP ) - 5259C	RND. ND. SEEDS = 1553507112. 1527637642. 1572366251. 4999.	O* 1* AT TIME	0. 1. AT TIME 1.00c. DGZ = ( 40.0° 40.0° 0.0) AGZ = ( PKF= 1.0.0 PK*# AT TGTPT 1 ( 0.0° 0.0) = 1.00  PKF= 3.0 PK*# AT TGTPT 2 ( 0.0° 0.0) = .30  PKF= 3.0 PK*# AT TGTPT 4 ( 0.0° 0.0) = .30  PKF= 1.0.0 PK*# AT TGTPT 6 ( 0.0° 1.0) = 2.00	1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 1.00.0) E 21 AGZ = ( 1.00.0) E 21 AGZ = ( 1.00.0, 1.00.0) E 21 AGZ = ( 1.00.0, 1.00.0) E 21 AGZ = ( 1.00.0, 1.00.0) E 21 AGZ = ( 1.00.0, 1.00.0) E 21
** EMPL, # (VOLLEY) 1 ( 1), JPN NG.	**CASUALTY*** ID: 3 IN LWK 11.	S REPAIRABLE IT	*** EMPL. * (VOLLEY) 1 ( 1). JPN NO.	<pre>&lt;&gt; qePairable item FC ***CASUALTY*** ID: 3 IN LNK 11. PKF*</pre>	** EMPL. # (VOLLEY) 2 ( 2). WPN NO.	<pre></pre>	ZZTIMERZZ FINISHED REPLIC. 31. CPUTIM-	<pre>&lt;***&gt; BEGINAING REPLICATION 32. RND</pre>	** EMPL. # (VOLLEY) 1 ( 1). #PN NO. ***CASUALTY*** ID: 10 IN LNK 95. PKF	** EMPL. # (VDLEY) 1 ( 1). 4PN ND. 5  ***CASUALTY*** ID: 7 IN LNK 9. PKF*  ***CASUALTY*** ID: 5 IN LNK 95. PKF*  ***CASUALTY*** ID: 5 IN LNK 95. PKF*  ***CASUALTY*** ID: 10 IN LNK 95. PKF*	** EMPL. # (VOLLEY) 1 ( 1). WPN NO. : ***CASUALTY*** ID: 4 IN LNK 4. PKF= ***CASUALTY*** ID: 5 IN LNK 95. PKF= ***CASUALTY*** ID: 6 IN LNK 5. PKF=

AND THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPER

0.0

-1.7.

18.3,

) - Z9V

0.0 110 110

0000

000

1.00. 131PT 161PT 161PT

ATA

4PM NG. .. AT 7 4. PKS* .30 P 95. PKF* .30 P 5. PKF* .30 P

ZKK.

** EMPL. * (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY** ID:

40.04

-4.4,

**V**GZ

0000

,0°0, 0°0) 0°0)

0000

1.24. 151PT 161PT 161PT

AT A

40 PKF 35 F 0 05 PKF 33 P 05 PKF 33 P

: ; ; ; ;

** EMPL. # (VOLLEY)
***CASUALTY*** IO:
***CASUALTY*** IO:
***CASUALTY*** IO:

ZZZ

•

• 5

15.6,

¥6Z

0.0

40.04

40.03

1.00

Ψ

4PH 40. 1.

Ξ.

** EMPL. # (VOLLEY)

0.0

-9.4,

-11.9,

**Y**GZ = (

,0.0,0 0.00 0.00

0000

1.00. 161PT 161PT 161PT

AT AT

** PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF** .30 PKF

SKES.

** EMPL. * (VOLLEY) ***CASUALTY*** ID: ***CASUALTY** ID: ***CASUALTY** ID:

	•							•	0	•	0.0	••	•
	2.53		<b>*</b>	٠		<b>*</b>		14.2,	18.2,	-7.0,	-14.7,	-14.7,	-9.2,
			5999.			5999.		13.4,9	7.3, -	10.0,	5.03	- '9•01	-7-3,
			•66			•666		<u>.</u>	<u>.</u>	<u>.</u>	<u>.</u>	·	
	AGZ		667			4 9		<b>A</b> 62	, <b>A</b> GZ	AGZ	AGZ	<b>A</b> 62	<b>A</b> 62
	, , , , , , , , , , , , , , , , , , ,		.757	****		602•	×	0.0 .30 .30	3.0 ) .21 .21 .21	1.00.0 .15 .15 .15	6.6 .10 .10	0.00	0.00
0.00	46.00 0.0) # 0.0) # 0.0) #	52590	671232737	61.00 360.00 720.00 C20.00	25230	1003589	121.00	0.00	00000	000000	0000	00000	0.0
000	10.00 0.00 0.00 0.00 TIME 1	ITOP ) .	27637642•	TIME TIME TIME	110P) *	527637642•	r TIME	0000	5 0 0 0 0 0 0 0	a ပရိုင်စို့ရှိ၌ စစ်ပပစ်	0000	0000	()°0 (C°0
7 8 4	DGZ = ( 2 ( 3 ( 4 ( AILURE AT	EMORY (	1427. 152	FAILURE AT FAILURE AT FAILURE AT	EMORY (	523. 1	AILURE AT	) + ) 2 ) 2 ) 3 ) 7	) + ) = 2 ) = 2 ) = 2 ) = 2 ) = 2	DG 2 2 2 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4	DG2 = ( 2 ( 3 (	) + ) = 290	DGZ = (
AT TGTPT AT TGTPT AT TGTPT	1.00. AT TGTPT AT TGTPT AT TGTPT A LITE F	TOP OF M	129597143	A LITE P A DEAD P A LITE P	TOP OF M	583173	A DEAD F	360.06. AT TGTPT AT TGTPT AT TGTPT	330.06. T TGTPT T TGTPT T TGTPT	330.00. AT TGTPT AT TGTPT AT TGTPT AT TGTPT	300.00. Af TGIPT AT TGIPT AT TGIPT	300.00. AT TGTPT AT TGTPT AT TGTPT	350.00. AT TGTPT
30 PK** A 30 PK*# A 30 PK*# A	30 PK** A 30 PK** A 30 PK** A 30 PK** A 13 IAD	4.732.	SEEDS	15 4AD 13 4AD 16 4AD 16 HAD	5.143.	# CG ## 12	13 HAD	AT TIME 30 PK*# A 30 PK*# A 30 PK*# A	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AT TISE 30 PK** A 30 PK** A 30 PK** A 30 PK** A	AT TIME 35 PK*# A 35 PK*# A 30 PK*# A	AT TIME 30 PK*# A 30 PK*# A 30 PK*# A	F TIME • PK*∉
Р КР В В В В В В В В В В В В В В В В В В В	7. 1. PKF= . PKF= .	I # 1	RND. NO.	6T. PT. 6T. PT. 6T. PT. 6T. PT.	TIW-	RND. MM.	T. PT.	NO. 1. A PKF# .3 PKF# .3	A	20. 1. 20. 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0. 7. 7. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	0. 1. PKF# .	HJ. 1. A) PKF= .3.
35. 95.	44. 95. AT TG	• CPUT	33.	AT TG AT TG AT TG AT TG	CP11T	34•	AT TG	79. 4. 4. 4.	N 4 6	# # 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	M 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4PH N	мдж 4
IN CAK	EN CAK	. 32	NO	2000	e e		2 0	2). IN LNK IN LYK IN LYK	2). IN LNK IN LNK IN LNK	EKEKES.	2). IN LAK IN LAK	in CXK	2). In Lak
440	1 ( 4 6 80%	REPLIC	EPLICATI	FROM I FROM I FROM I	REPLIC	REPLICATION	FRUM I	0 4 C O	2 4 7 6	262	0 4 7 6 0 11 11	2 4 R 4	2 ( 4 I
LTY*** ID: LTY*** ID: LTY*** ID:	* EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	FINISHED A	BEGIPHING REPL	1.060 UNIT R 1.000 UNIT R 1.000 UNIT R	FINISHED &	BEGINNING REPL	A TINU CCO.	(VOLLEY) LTY*** ID: LTY*** ID: LTY*** ID:	* EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	(VOLLEY) LTY*** ID: LTY*** ID: LTY*** ID: LTY*** ID:	* EMPL. * (VALLEY) ***CASU4LTY*** ID: **CASU4LTY*** ID: ***CASU4LTY** ID:	* EMPL. # (VOLLEY) ***CASHALTY*** IO: ***CASUALTY*** ID: ***CASUALTY*** ID:	L. # (VOLLEY) ASUALTY*** ID:
***C ASUAL TY*** ***C ASUAL TY*** ***C ASUAL TY***	** EMPL. # ***CASUAL ***CASUAL ***CASUAL ***CASUAL	zztinerzz	<***> 8EG		ZZTIMERZZ	<*** BEG	>>> 1.	** EMPL. # (VOLLE) ***CASUALTY*** ***CASUALTY*** ***CASUALTY***		** EMPL。 # (VOLLE: ***CASUALTY*** ***CASUALTY*** ***CASUALTY** ***CASUALTY***	** EMPL. * ***CASUA! ***CASUA! ***CASUA!	** EMPL. # ***CASHAI ***CASUAI ***CASUAI	** EMPL. * ***CASUAL
	<b>4</b> ^	**		0000	**	218		#	*	#	#	#	*

	•	•	0.0			0.0		0.0		0.0	•	0.0			0.0		0.0	
	-9-3>	-5.4,	.6.9,	•	**	27.8,		26.92		26.7,		21.5,			19.25		55.3,	
	2.29	16.4,	<b>.1.</b>	•	5999•	13.2,		11.0,		2.8,		55.4,			78.19		45.8,	*
	) AGZ = (	) = Z9Y (	) <b>4</b> 62 • (		*666*	) • Z9V (	0000000	) - Z9V (	0.000	) * Z9V (	, 0000-0	) - Z9V (	0000	c000°	) * Z5¥ (	• 0000	) = Z9¥ (	3
.05	0000	0000	0.00		366.	0.0	3000 0.	0.0	.3000 0. 21	0.0	.3000 0.	0.0	300C C.	3000 0.	0.0	.3000 C.	0.0	3030 C. •07 •153
000	0000	0000	000000000000000000000000000000000000000	52590	16778833	40°62 50°03	.0000 .3( 50.9) =	40°C>	.0000 .3( 50.0) .	40.04	0.0000 .3( 50.0) =	40.04	.0000 .3(	. (0.09	40.04	* (0.03 * 000C.0	40.04	;;
60.0	o 0 0 0 0 0 0 0	0000	0.00 0.00 0.00 0.00 AT TIME	110P ) •	1527637642•	20.02	26.0,	20.02	E) = 0.0 20.0,	40.04	20.03	40.62	, 0.03 20.03	0 •0•09	40.03	E) = 0°3	40.03	20.03 EP DA
w 4 ~~	) 5 ) 2 ) 3 ) 3 ) 4	. D62 = (	. DGZ = 2 ( 2 ( 3 ( 4 ( 4 ( FAILURE	MEMORY (	172349116, 15	• 962 <del>=</del> (	(DEAD, MED., LITE) TGTPT 13 (	• DGZ • (	(DEAD,MED.¿LITE TGTPT 13 (	• DGZ • (	(DEAD, MED., JLITE) TGTPT 13 (	• Z90	(DEAD, HED., LITE TGTPT 13 (	MED.,LITE) 16 (	• DGZ •	(DEAD, MED., LITE TSTPT 16 (	• DGZ •	(DEAD,MED,JLITE) TGTPT 13 ( TGTAL JUNK FURTH
T TGTPT T TGTPT	300.00 r rgrpr r rgrpr	333.06. 1 161PT 1 161PT 1 161PT	300.00   TGTPT   TGTPT   TGTPT	100 OF	1723	2.99 TGTPT	COEAD,	1.00. I TGTP I		1.96.	(OEAD,	1.00.	(DEAD)	(DEAD, ME T TGTPT	1.05	(DEAD,	1.00.	(DEAD)
P * * * * * * * * * * * * * * * * * * *	TIME PK*# AT PK*# AT PK*# AT	TIME PK*# AT PK*# AT	TINE PK*# A' PK*# A' PK*# A'	• 423•	SEEDS =	TINC PK*# AT	PK*# AT	TIME PK## AT	PK S PK*# AT	TINE	PK S PK*# AT	11 4G	PK*# AT	PK S	TIME	5. PK S PK*# AT	J-11	.33 PK*# AT
F* .30	1. AT F= .30 F= .30	1. AT	## . AT F# . 33. C . 32.	15	Ç.	1. AT F33	TEM FOLLOWS PKF* +39	1. AT	TEM FOLLOWS PKF= .30	1. AT	FOLLOWS.	I. AT	TEM FULLUWS PKF= .3J	FILLOWS	1. AT	FOLLOWS	1. AT	#0CI
95. PKF	4PN NG. 4. PKF 95. PKF 5. PKF	4PN NG. 4. PKF= 55. PKF=	4° PKF* 95° PKF* 5° PKF* AT TGT° PT	CPUTIM=	5. RND	WPN NO.		JPN NO.		WPN NO.	LE ITEM F 10. PKF*	WPN NO.	۳.5	LE ITEM P.	WPN AD.	LF ITEM E	4PN 40.	<del>-</del>
žž	525. 545.	22 24 24 54 54 54	CNK CNK LNK	34.	ν. N	1 ( 1). 1 IN LNK	REPAIRABLE 2 IN LNK 1	1 ( 1). 1 IN LYK	AIRAB	13.	REPAIRABLE 1 2 IN LNK 10.	1).	REPAIRABLE IN LNK 1	REPAIRABLE I IN LNK IN		REPAIRABLE 3 IN LIK IN	=======================================	A 13 A B I L H K 3 A T
o IN IN	2 ( 4 IN 5 IN 6 IN	2 ( TH 2 IN 2 IN 2 IN 2 IN 2	2 ( 4 IN 5 IN 5 IN FROM ID	FINISHED REPLIC.	REPLICATION	1 ( II	<> REP	NI T	<pre>&lt;&gt; REPAIRABLE 1 2 IN LNK 1 3 </pre>	7	<> REF 2 IN	1 (	<> REP 2 IN	<> RG:	7	<> REF	1 (	<pre>&lt;&gt; cepairable 2 in lak in . id: 3 at (</pre>
:: :::::::::::::::::::::::::::::::::::		.teY1 :* ID: :* ID:	LEY) # ID: # ID: UNIT #	SHED		LEY)	# ID:	LEY)	# ID:	(VOLLEY)	* ID:	(VOLLEY)	:01 *	:01 +:	( AUTTEL)	* I.):	( VOLLEY )	* TD:
***CASUALTY*** ***CASUALTY***	# (VOL JALTY** JALTY**	# (VOL JALTY** JALTY** JALTY**	# (VOLLEY) JALTY*** ID UALTY*** ID UALTY*** ID I.500 UNIT		9EGINNING	EMPL. # (VOLLEY) ***CASUALTY*** ID:	***CASUALTY*** ID:	# (VDL JALTY**	***CASUALTY***	10/) #	***CASUALTY*** ID:	# (VOL	***CASUALTY**	***C A SUAL T Y***	*	***CASUALTY*** IJ	# (VOL	***CASUALTY*** TD: JUNK CAS
***CASI	** EMPL. * (VOLLEY)  ***CASUAL"Y*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:	** EYPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL。 # (VOLLEY)     ***CASUALTY*** ID:     ***CASUALTY*** ID:     ***CASUALTY*** ID:     ***CASUALTY*** ID:	<b>zz</b> timer <i>z</i> z	36 <***>	** EMPL. ***¢ASU	***CAS	** EMPL. * (VOLLEY) ***CASUALTY*** ID:	***CAS	** EMPL.	***CAS	** EMPL.	***CAS	***CAS(	** EMP L.	***CAS(	** EMPL.	***C ASI
	₩	*	<b>★</b> ^	•		•	_	₩ 40		#		*			*		*	

<pre>&lt;&gt; REPAIRABLE ITEM FULLOWS. PK S (DEAD, MED) ***CASUALTY*** ID:</pre>	ED.,LITE)			
** EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.CO. D	DGZ = ( 40.0, 40.0, 0.0) AGZ	. ( 86.49	26.3,	0.0
LLOWS. PK S (DEAD, MED .34 PK*# AT TGTPT	ED., LITE			
** EMPL. # (VOLLEY) 1 ( 1). 4PH NO. 1. AT TIAG 1.00 DG ***CASUALTY*** ID: 11 IH LNK 12. 9KF. 1.00 PK*# AT TGTPT ***CASUALTY*** ID: 1 IN LNK 6. PKF30 PK*# AT TGTPT 1 ***CASUALTY*** ID: 7 IN LNK 3. PKF. 1.00 PK*# AT TGTPT 1 ***CASUALTY** ID: 2 AT ( 20.0). TOTAL JUNK	. DGZ = ( 43.0; 40.0; 0.0) AGZ 9 ( 20.3; 50.0) = 1.00 11 ( 20.0; 50.0) = .09 12 ( 20.0; 50.0) = .60 IUNK FURTHER DAMAGED = .250	. ( 22.2,	39.1,	0.0
<> REPAIRABLE ITEM FOLLOYS. PK S (DEAD, MED ***CASUALTY*** ID: 2 IN LUK 10. PKF* .3) PK*# AT TGTPT	(DEAD, MED., LITE) = .3000 C.0000 0.000 TGTPT 12 ( 20.0, 50.0) = .05			
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD.MED./LIT ***CASUALTY*** ID: 3 IN LNK 11. PKF* .30 PK*# AT TGTPT 16 (</pre>	15D.,LITE) = 6.9000 .3000 0.0000 16 ( 60.0, 60.0) = .07		•	
** EMPL. # (VOLLEY) 1 ( 1). WPN NG. 1. AT TIME 1.30. D	. DGZ m ( 40.0, 40.0, 0.0) AGZ	• ( 92.6)	55.4,	0.0
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD.MED.,LIT ***CASUALTY*** ID: 3 IN LUK 11. PKF* .33 PK*# AT TGTPT 16 (</pre>	IED., LITE) * 0.0000 .3000 C.0000 16 ( 60.C, 60.0) * .05			
** EMPL. # (VOLLEY) 1 ( 1). WPN NG. 1. AT TIME 1.00. D ***CASUALTY*** ID: 4 IN LNK 4. PKF= .3.) PK*# AT TGTPT ***CASUALTY*** ID: 5 IN LNK 95. PKF= .3.) PK*# AT TGTPT ***CASUALTY*** ID: 6 IN LNK 5. PKF= .3.0 PK*# AT TGTPT	. DGZ = ( 40.0, 40.0, 0.0 ) AGZ 2 ( 0.0, 6.0) = .30 3 ( 0.0, 0.0) = .30 4 ( 0.0, 0.0) = .30	• ( 10.7,	16.2,	• •
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD, NED. ***CASUALTY*** ID: 2 IN LNK 10. PKF= .33 PK*# AT TGTPT 1</pre>	IED., LITE) - 0.0030 .3000 G.CCOO			
** EMPL. # (VJLLEY) 1 ( 1). WPN NO. 1. AT TIMT 1.00. D ***CASUALTY*** ID: 1 IN LMK 0. PKF* .3U PK*# AT TGTPT	, DGZ = ( 40.0, 40.0, 0.0) AGZ	. ( 12.5,	28.9,	0.0
C IN LIK 10, PKF= .30 PK## AT	(DEAD,MED,LITE) * 6.3000 .33000 C.6000 TGTPT 13 ( 20.0, 50.0) * .02			
** EMPL. # (VOLLEY) 1 ( 1). WPN ND. 1. AT TIME 1.600 D ***CASUALTY*** ID: 1 IN L4K 5. PKF= .31 PK** AT TGTPT *.JUNK CAS. ID: 2 AT ( 20.5). 50). TOTAL JUN	. DSZ = ( 40.0, 40.0, 0.0) AGZ 11 ( 20.0, 50.0) = .04 JUNK FURTHER DAMAGED = .193	. ( 25.5,	57.3,	•
. CAN REPAIRABLE ITEM FOLLOWS. PK S (DEAD.MED ***CASUALTY*** ID: 2 IN LNK 10.0 PKF= 03.0 PK# AT TGTPT	(DEAD, MED, ,LITE) - ,3CJC 0.000C 0.0000 TGTPT 13 ( 20.0, 50.0)02			
<pre>&lt;&gt; REPAIRABLE ITEH FOLLOUS. PK S (DEAD.MED ***CASUALTY*** IJ: 3 IN LNK ii. PKF* .3) PK** AT TGTPT</pre>	(DEAD,MED.,LITE) = 0.0000 .3000 0.0000 TGTPT 16 ( 60.00 60.0) = .04			
** EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 1.00. D	, DGZ * ( 44.0, 44.C, 0.0) AGZ	. ( 62.6,	26.29	•
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD.MED.LITE</pre>	IED., LITE) = 0.0000 .3000 0.0000 16 ( 60.0, 60.0) = .02		•	
** EMPL. * (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 1.0C. D	, DGZ * ( 40.0, 40.C, 0.0) AGZ	• ( 64.0)	18.4,	0.0
<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD.MED.LIT ***CASUALTY*** ID: 3 IN LIK 11. PKF* 33 PK*# AT TGTPT 16 (	1ED.   LITE) = 0.3030 .3000 C.6000 16 ( 60.0) = .02			
** EMPL. # (VOLLEY) 1 ( 1). WPN NJ. 1. AT TIME 1.35. D	, DGZ = ( 4C.3, 40.0, 0.C) AGZ	= ( 49.2)	51.9,	0.0
<> REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED	(PEAD, MED., LITE) * 6.3000 .3000 0.0000			

		60.7, 0.0 )		37.8, 0.0 )			41.8, 0.0)		( 0.0 ,0.0)		47.5, 0.0)	х	40.2, 0.0 )			39.8, 0.6)		29.8, 0.0)	
		17.9,		21.3,			74.1,		3.8,		4.93		56.69			2.9,		67.5,	
***CASU4LTY*** ID: 2 IN LNK 19. PKF¤ ,39 PK*# AT TGTPT 13 ( 26.0; 59.0) = ,01 junk cas ID: 3 AT ( 60.0; 60.0), TOTAL JUNK FURTHER DAMASED = ,198	<pre></pre>	** EMPL. # (VOLLEY) 1 ( 1). YPN KJ. 1. AT TIML 1.00. DGZ = ( 46.0, 40.0, 0.0) AGZ = (JIMK CAS ID: 3 AT ( 60.0, 60.0). TOTAL JUNK FURTHER DAMAGED = .139	<pre></pre>	** EMPL. # (VOLLEY) 1 ( 1), 4PN ND. 1. AT TIME 1.CC. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( **CASUALTY*** ID: 1 IN L'HK 6. PKF= .30 PK** AT TGTPT 11 ( 20.0, 50.0) = .03 JUNK CAS ID: 2 AT ( 20.0, 50.0), TOTAL JUNK FURTHER DAMAGED = .139	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = .3000 0.0000 0.0000 ***CASUALTY*** ID: 2 IN LNK 10. PKF* .30 PK*# AT TGTPT 13 ( 20.0, 50.0) = .01</pre>	<pre>&lt;&gt; REPAIRABLE ITEM FOLLGWS.PK S (DEAD,MED.,LITE) = 0.0000 .3000 0.0000 ***CASUALTY*** ID: 3 IN LNK 11. PKF= .3J PK*# AT TGTPT 16 ( 60.0, 60.0) = .01</pre>	** EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.CU. DGZ = ( 40.G, 40.C, 0.C) AGZ = (JUNK CAS ID: 3 AT ( 60.0). TOTAL JUNK FURTHER DAMAGED =D99	<pre>&lt;**CASUALTY*** ID: 3 IN LNK 11.0 PKF= .30 PK*# AT IGTPT 16 ( 60.0) 60.00 0.0000 0.0000 ***CASUALTY*** ID: 1 IN L'NK 6.0 PKF= .30 PK*# AT IGTPT 18 ( 60.0) 60.0) = .04</pre>	** EMPL. # (VOLLEY) 1 ( 1). WPN ND. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( ***CASUALTY*** ID: 1 IN LNK 6. PKF= .3) PK*# AT TGTPT 11 ( 20.0, 50.0) = .02	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS.PK S (DGAD,MED.LITF) = 0.0000 .3000 0.0000 ***CASUALTY*** ID: 2 IN LW 10. PKF= .3) PK** AT 1GTPT 13 ( 20.0, 50.0) = .01</pre>	** EMPL, # (VOLLEY) 1 ( 1), WPN NJ, 1, AT TIME 1,00, OGZ # ( 40,0, 40,0, 0,0) AGZ # ( ***CASUALTY*** ID: 1 IN LUK & PKF# AT TGTPT 11 ( 20,0, 50,0) # .01	<pre>&lt;&gt; REPAIRABLE ITEM FJLLDWS. PK S (DEAD,MED.,LITE) * G.JCOO .3000 0.0000 ***CASUALTY*** ID: 2 IN LHK 10. PKF* .30 PK*# AT TGTPT 13 ( 20.0) 50.0) * .00</pre>	** EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.00. DGZ * ( 40.0, 40.6, 0.0) AGZ * (	<pre>&lt;**CASUALTY*** ID: 2 IN LUK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.0). 50.0) = .00 ***CASUALTY*** ID: 2 IN LUK 10. PKF= .30 PK*# AT TGTPT 13 ( 20.0). 50.0) = .00 *.JUNK CAS.* ID: 3 AT ( 60.0). TOTAL JUNK FURTHER DAMAGED = .069</pre>	<pre>&lt;&gt; REPAIRABLE ITEM FDLLGMS, PK S (PEAD, FLITE) = .3030 C.3000 0.0000 ***CASUALTY*** ID: 3 IN LNK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .00 ***CASUALTY*** ID: 1 IN LNK 6. PKF= .30 PK*# AT TGTPT 18 ( 60.0, 60.0) = .03</pre>	** EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( ***CASUALTY*** ID: 1 IN LWK 6. PKF= .30 PK*# AT TGTPT 11 ( 20.0, 50.0) = .01	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) * 0.000C3GUO 0.C000 ***CASUALTY*** ID: 2 IN LMK 16. PKF* .30 PK*# AT TGTPT 13 ( 20.0, 50.0) * .00</pre>	** EMPL. # (VOLLEY) 1 ( 1). 4PN ND. 1. AT TIME 1.CO. DGZ * ( 40.C) 46.C, 0.0) AGZ * (	

. ( 1). WPN MG. 1. AT TIME 1.03. DGZ = ( 40.0). 40.0. 0.0 ) AGZ = ( 17.2. 1 IN LNK 0. PKF= .30 PK*# AT TGTPT 11 ( 20.0). 50.0) = .01
4PN ND. 1. AT TIME 1.CO. DGZ = ( 40.C) 40.C, C.O.) AGZ = ( 5.8, 4.5 PKF= .3U PK** AT TGTPT 2 ( C.O.) 2.C) = .21 95. PKF= .3O PK** AT TGTPT 3 ( C.O.) 0.O) = .21 5. PKF= .3O PK** AT TGTPT 4 ( O.O.) = .21
4PH NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 56.5, 5.PKF .3) PK*# AT TGTPT 18 ( 60.0, 60.0) = .02
4PN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 19.8, 6. PKF= 1.00 PK*# AT TGTPT 11 ( 20.0, 50.0) = .02
4PH NO. 1. AT TIME 1.00. DGZ = ( 40.6, 40.6, 0.0) AGZ = ( 82.1, 6. PKF= .35 PK*# AT TGTPT 18 ( 60.6, 60.0) = .31
4PN NO. 1. AT TIME 1.90. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 68.1, 3. PKF 1.0) PK*# AT TGTPT 14 ( 66.0, 60.0) = .40 8. PKF= 1.0) PK*# AT TGTPT 15 ( 60.0, 60.0) = 1.00 7. PKF= 1.00 PK*# AT TGTPT 17 ( 60.0, 60.0) = 1.00 6. PKF= .30 PK*# AT TGTPT 16 ( 60.0, 60.0) = .01
JPN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 44.5, 6. PKF= .3) PK*# AT TGTPT 18 ( 60.0, 60.0) = .01
4PH NO. 1. AT TIME 300.00. DGZ = ( 6.6, 0.6, 0.0) AGZ = ( -20.8,
REPAIRABLE ITEM FOLLOUS. PK S (DEAD,MED.,LITE) « C.OUGO .3000 0.6000 ! In Lak 10. Pkf= .30 Pk+# at TGTPt 13 ( 20.0, 50.6) » .01
2). WPH ND. 1. AT TIME 300.60. DGZ = ( 0.0. 0.0. 0.0.) AGZ = ( 13.6. LNK 1. PKF= 1.00 PK*# AT TGTP! 1C ( 20.6. 50.0) = 2.00 LNK 5. PKF= .30 PK*# AT TGTP! 11 ( 20.0. 50.0) = .00
REPAINABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = .300G 0.600G 0.0000 ? In LNK 1G. PKF= .30 PK*# AT TGTPT 13 ( 20.0, 56.0) = .01
REPAIRABLE ITEM FOLLDMS, PK S (DEAD,MED.,LITE) = 0.0000 .3000 C.C000 3 IN LYK 11, PKF= .3.9 PK*# AT TGTPT 16 ( 60.C, 60.C) = .00 .15° UNITS UF ID 3 AT COORDS 10.C, 10.C = .15° UNITS UF ID 3 AT COORDS 10.C, 10.C = .0.C.), .3.U(, .3.J), AND RN = .035 = .0.C.), .3.U(, PUT INTO MEDIUM JUNKPILE.
2). WPN NO. 1. AT TIME 300.00. DGZ . ( 0.0, 0.0) AGZ = ( 50.0,
REPAIRABLE ITEM FBLLDWS. PK S (DEAD,MED.,LITE) = 0.0000 .3000 0.0000 2 in LWK 1C. PKF= .35 PK*# AT TGTPT 13 ( 20.0, 56.0) = .01
RÉPAIRABLÉ ITEM FOLLOAS. PK S (DEAD,MED.,LITE) = .3COC C.COOC C.COOC 3 IN LW 11. PKF= .3J PK*# AT TGTPT 16 ( 60.0, 60.0) = .00
2 ( 2), 4PN 4D, 1, 4T TIME 307,00, DGZ * ( 0.6, 0.6, 0.0) AGZ * ( 33.3, I IN LHK 6, PKF* ,3, 7K*# AT TGTPT 11 ( 20.3, 50.0) * .00
<pre></pre>
2). WPN ND. 1. AT TIME 300.00. DGZ * ( 0.0. 0.0. 0.0. 0.0 ) AGZ * ( .66.1.

.3000 C.C000

0.0000

<> REPAIRABLE ITFM FOLLOAS. PK S (DEAD,MED.,LITE) *

	0	0.0	0.0	0.0	0	• .	•			0	••	<b>3</b>		0		0.0
	73.0,	65.3,	75.0,	15.7	82.22	69.59	80.69		<b>*</b>	7.0.	-15.6,	13.2,	•	12.4,		5.7,
	21.5,	21.4,	5.1,	3.5,	35.19	15.9,	19.1,		\$666	-6.59	-7.8,	•••		28.3,		17.8,
00.	0.0 ) AGZ = ( .22 .33	3.6 ) AGZ = ( .16	0.0 ) AGZ = (	0.0 ) AGZ = (	3.C ) AGZ = ( .05	0.0 ) AGZ = ( .04	0°0 ) AGZ • (		• 6664	0.6 ) AGZ = ( .00 .30 .30 .30	0.0 ) AGZ = ( .21 .21 .21	0.6 ) AGZ = { .15 .15 .15	0 0.0000 36.	0.0 ) AGZ . (	0 0.6600 .21	0.0 } AGZ * { .13
50.0) =	90.0) = 1 80.0) = 1	0.0, 80.0) =	9.00	. (0.03 60.0)	80.0	90.03 90.03	80.0) # 690.0c <<	52590	736611946	0,000	0.00	\$ 0000	50.00 .3000 50.033	40.03	50.03 *3000 50.03 * *3	40.00
13 ( 20.0)	DGZ = ( C.0, 19 ( 20.0, 21 ( 20.0,	62 = ( 0.6) 19 ( 26.6)	062 = ( 0.03 19 ( 20.03	06Z * ( C.C. 19 ( 25.3)	062 = ( C.O.) 19 ( 26.0)	067 = ( 0.03 19 ( 20.03	- DGZ = ( 0.0) 19 ( 20.0) FAILURE AT TIME FAILURE AT TIME 1	ORY ( 170P ) .	.2C• 237194759•	62 = ( 40.0) 1 ( 0.0) 2 ( 0.0) 3 ( 0.0) 4 ( 0.0) 6 ( 0.0)	DGZ # ( 40.03 2 ( 0.03 3 ( 0.33 4 ( 0.33	62 + 46.03 3 ( 6.03 ) 4 3 ( 6.03 ) 4	13 ( 20.0)	062 = ( 40.0)	13 ( 20.0)	62 a ( 40.05 2 ( 0.05) 3 ( 0.05)
AT TGTPT	30C.06. DOAT TGTPT AT TGTPT	330.00. D	31.9.90. 0 AT TGTPT	30.00.00. / TGTPT	300.60. D	300.00. D	300.0C AT TGTP1 A LITE A DEAD	TOP OF MEMORY	- 14442858	2.00. D AT TGTPT AT TGTPT AT TGTPT AT TGTPT AT TGTPT	1.00. AT TSTPT AT TGTPT AT TGTPT	1.6C. D AT TGTPT AT TGTPT AT TGTPT	S (DEAD, MED AT TGTPT	1.3%	S (DEAD,MeD AT TGTPT	AT TGTPT AT TGTPT
= +33 PK*#	1. 1. AT TIME KF# .3. PK*# KF# 1.00 PK*#	1. AT TIAL P= .30 PK*#	1. AT TINE F30 PK*#	1. AT TIME F= .30 PK*\$	1. AT TIME F= .34 PK*#	1. AT TIME F* .30 PK*#	1. AT TIME F* 1.00 PK** PT. 13 4AD PT. 13 4AD	15.740.	ID. NO. SEEDS	1. AT TIME 1.00 PK*# 1.00 PK*# 1.00 PK*# 1.1.00 PK*#	1. AT TIME F= .30 PK*# F= .30 PK*# F= .30 PK*#	1. AT TIME F= .3. PK*# F= .3. PK*# F* .3. PK*#	FOLLOWS. PK	1. AT TIME	EM FOLLOWS. PK PKF* .30 PK*#	1. AT TIME F= .3J PK*# F= .3J PK*#
LNK 10. PKF	2). XPN ND. LNK 95. PK LJK 95. PK	2) • WPN NO. LNK 95. PK!	2) • 4PN NG• LNK 95• PKF	2). VPN NO. LNK 95. PKI	2) • WPN NO • LNK 95 • PK	2) • 4PH N9. LHK 95. PKI	2). 4PN NO. LNK 95. PKF. 2 AT TGT. 2 AT TGT.	35. CPUTIM	35. RND	1). WPH HO. LAK 9. PKF** LNK 45. PKF** LNK 95. PKF** LNK 5. PKF** LNK 95. PKF**	1). 428 43. LNK 4. PKF: LNK 95. PKF: LUK 5. PKF:	1). 4PN 40. L'4K 4. 2KF. LNK 95. PKF. LNK 5. PKF.	IRABLE ITEM LNK 10. PK	1). YPN NJ.	PAIRABLE ITEM N LAK 19. PK	1). WPN NO. LVK 4. PKF. L·K 05. PKF.
2 IR	2 C IN IN IN	2 ( 5 IN	2 ( : 5 IN	2 C	2 (	2 ( 5 IN	2 ( 5 IN ROM ID ROM ID	REPLIC.	REPLICATION	T 4 2 2 1 1 N 1 5 1 1 N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1 5 1 I N 1	1	1 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	C> REPAIRABI	1	\$ 42 :	1 C : 5 IN :
***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*** ID	** EMPL. # (VOLLEY)	zzTIMERZZ FINISHED	<pre>&lt;***&gt; BEGINMING RE</pre>	** EMPL * (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. # (VJLLEY) ***CASUALTY*** IO: ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. # (VNLLEY) ***CASUALTY*** ID ***CASUALTY*** ID ***CASUALTY*** ID	***CASUALTY*** IP	** EMPL. # (VOLLEY)	***CASUALTY*** ID	** EMPL, # (VOLLEY) ***CASUALTY*** ID ***CASUALTY*** ID				

		0.0	0.0			0.0		. 0.0	0.0		0.0		0.0		0°0	•	° 0
		3.4,	15.8,			10.7,	•	-12.6,	2.6,		16.8,		6.69		6.29	•	13.9,
		-2.6,	38.0,			19.7,		-3.6,	14.1,		6		22.3,		29.9,		13.2,
		) = 2	) • 2			) = Z		) = 2	) <b>=</b> Z		) • 2		) = 2		) = 2		
	0000000	0 ) AG	.c ) AGZ	0.000.0	0000000	.0 ) AGZ	000000	55 2 AG	44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	.3000	0.0 ) AG 0.2 0.2 0.2 0.2 .015	0000.0	0.0 ) AG	د•٥٥٥٥٥	0.0 ) AGZ	6.6550	0.0 ) AGZ 02 02 02 03
	3000 .	.6, 0.0   = .07   .07	0 19.	.3030 (	.3300	0	.3006	002	2000	00000-2	3"""	.3000	٥.	.3000	6.	3006.	3
0.0	9.000.0	9000	0, 40.	0.0000	0.0907 60.03	40.03 40	0.0000	6,000	0000	3.0006	00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00	0.3000	40.0, 40 : DAMAGED =	0.0000	4C.O. 40 DAMAGED =	0.0000	.0, 40, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
0.0	JLITE) = 3 ( 20.0)	00000	24 ) =	LITE) =	ITE) = ( 60.0%	0,4	ITE) = ( 20.0,	• • • • • • • • • • • • • • • • • • •	2000 000 000	ITE) = ( 20.0)	. ( 6.05 ( 6.05 ( 6.05 ( 6.05 FURTHER DA	ITE) = ( 20.6,	RTHER D	ITE) = ( 29.3,	* ( 4C	JLITE) = 3 ( 20.0)	# ( 46.02 0.02 0.03 0.03 0.03 0.03 0.03 0.03 0
4 14		00. 96Z 01 2 01 3	.63. DGZ	(DEAD, MED., L TGT PT 13	(DEAD,MED.,LIT	.30. 96z	(DEAD,MED.,LITE) TSTPT 13 (	000 062 PT 2 PT 3	00. 062 PT 2 PT 3	150.JL	DG 2	(DEAD,MED.,LITE TGTPT 13 (	1.CC. DGZ = ( TJTAL JUNK FURTHER	(DSAD,MED.,LITE) TGTPT 13 (	1.00. 06Z = ( TOTAL JUNK FURTHER	IDSADAMED.AL TGTPT 13	DG Z
AT TGT	S (DEAD,M) AT TGTPT	1.00 AT TGTPT AT TGTPT AT TGTPT	1-1	SAT	N.A	H •	SATA	1.00. AT TGTPT AT TGTPT AT TGTPT	1.00 AT TSTPT AT TSTPT AT TGTPT	S (DEAD,	1.00 AT TGTPT AT TGTPT AT TGTPT TOTAL	SAT		SATA		A	1.30. AT TGTPT AT TGTPT AT TGTPT TOTAL
.30 PK*#	FOLLOWS. PK	AT TIME 30 PK*# 30 PK*# 3J PK*#	AT TI'1E	FJLLOWS. PK = .30 PK**	F7LLGWS. PK = .30 PK*#	AT TIME	LOWS. PK	AT TIME 30 PK*# 33 PK*# 30 PK*#	AT TIME • 30 PK** • 30 PK**	LOWS. PK .30 PK*#	AT TING 30 PK*# 30 PK*# 50.0)	FOLLOWS. PK	AT TINE	#*X4 CE*	AT TIHE 59.0).	FJLLOWS. PK*#	.30 PK*# .30 PK*# .50 PK*# .50 PK*#
. 9 K F #	TEM	700. PKF# PKF#	หภ. 1.	는 X X	TEMPKF	ND. 1.	ITEM FOL • PKF=	NO. 1. PKF. PKF.	OKF.	ITEM FOL • PKF*	'10. 1. PKF= PKF= 20.03	PX	110. 1. 26.33	TEM FOL	VD. 1. 20.0,	TEM PKF	NU. 1.
LNK 5	315	1). 4PH LNK 4. LNK 95. LAK 55.	1). 4PN	REPAIRABLE IT	8 LE	1). YPN N	REPAIRABLS ITEM FOLLOWS IN LNK 10, PKF = .30	1). 4PN N LNK 4. LNK 95. LNK 5.	1). WPN N LVK 4. LNK 95. LNK 95.	REPAIQABLE ITEM FOLLOWS. PK : IN LNK 10. PKF= .30 PK*#	1). 4PN 4 LNK 95. LNK 95. LNK 5.	REPAIRABLE I IN LNK 1C.	1). YPN N 2 AT (	REPAIRABLE ITEM FOLLOWS IN LNK 10, PKF= .30	1) . 4PN 2 AT (	37.5	1). XPN LNK 4 LNK 95 LNK 95 LNK 5
9 IN	\$ 63	1 C 4 IN 5 IN 5 IN	) 7	\$ ~	۰°	H	\$ "	) ( 4 IN 5 IN 6 IN	2 to 5 to 6 to 6 to 6 to 6 to 6 to 6 to 6	\$ ~	) ( 4 IN 5 IN 6 IN	\$ "	. 10: . 10:	\$	. to:	\$ ~	1
ال×** ID:	الم*** ID:	. Y*** ID: . Y*** ID: . Y*** ID:	(VOLLEY)	.V*** IO:	اب×** ID:	(VOLLEY)	ΓΥ*** ID:	(VCLLEY) FY*** IO: FY*** IO:	(VOLLEY) FY*** ID: FY*** ID:	:0I ***L	# (VOLLEY) JALTY*** ID: UALTY*** ID: UALTY*** IO:	ΓΥ*** ID:	* (VOLLEY)	. Y*** ID:	* (VOLLEY)JUNK CAS.	ΓΥ*** ID:	* (VOLLEY) ALTY*** ID: ALTY*** ID: ALTY*** ID: ALTY*** ID:
***C ASUALT Y**	***C 4 SUALT Y***	***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** IO:	EMPL. # (	***C A SUAL T Y**	***C ASUALT Y***	** EMPL. * (VOLLEY)	***C ASUAL TY***	: EMPL. # (VCLLEY) ***CASUALTY*** ID ***CASUALTY*** ID ***CASUALTY*** ID	* EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	***CASUALTY*** ID	EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** IO: ***CASUALTY*** IO:	***CASUALTY*** ID:	EMPL. #	***CASUALTY*** ID	EMPL. #	***C ASUAL T Y***	* EMPL. * (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:
#	¥	***	*	*	*	*	*	* * * *	# # # # #		* * *	*	*	*	*	*	* * *

<> REPAIKABLE ITEM FOLLOWS, PK S (DEAD, MED., LITE) = 0.0000 .3000 0.6000

2999. <***>

*666*

RND. NO. SEEDS - 1388756147. 1262311699. 1829301448.

<***> BEGINNING REPLICATION 37.

** EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.30. DGZ = ( 46.0, 40.0, 0.0) AGZ = ( 16.3, 63.0, ***CASUALTY*** ID: 1 IN LYK 6. PKF= .30 PK*# AT TGTPT 11 ( 20.0, 50.0) = .18	1 ( 1). 1 IN LYK	WPN NO.	1. A1	T TIME	11 10	1.30. [ STPT	)6Z = { 11 (	40.03	40°C5	94	٠ و و	• 29¥	_	16.3,	63.0,	0.0
\$ #	<pre>&lt;**CASUALTY*** ID: 2 IN LNK 10. PKF</pre>	LE ITEM 10. PK	FOLL 91	HS. PK S	O TY	EAD, MEI STPT	).,LITE) 13 (	20.03	3006 C		3.5	8				
<pre>&lt;&gt; ***CASUALTY*** ID: ***CASUALTY*** ID:</pre>	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS.PK S (DEAD,MED.LITE) = 0.0000C .3000 0.0000 3 IN LNK 11. PKF= .3.9 PK*# AT TGTPT 16 ( 60.0, 60.0) = .30 5 IN LNK 95. PKF= .3.0 PK*# AT TGTPT 19 ( 20.0, 80.0) = .30</pre>	LE ITEM 11. PK	FOLLOS F= .35 F= .36	NS. PK S D PK*# A D PK*# A	255	EAD, HEI GTPT GTPT	),,LITE) 16 ( 19 (	60.03 20.03	0000 60.03	.3000	٥	0				
** EMPL. # (VOLLEY) 3	1 ( 1). 4PH	TPN NO.	1. 47	NO. 1. AT TIME		1.00.1	) - 290	1.00. DGZ = ( 40.0, 40.0, 0.0) AGZ = (	40.0	0	•	<b>A</b> 62	_	10.7,	10.7, 74.6,	0.0

	***CASUALTY*** ID: 5 IN LNK 95° PKF= ,30 PK*# AT TGTPT 19 ( 26.6, 80.0) =	5 IN LNK 9	5. PKF	*30 PK*#	-	GTPT	16 (	20.02	80.09	• 30						
	** EMPL. # (VOLLEY)	1 ( 1). 4PH NO. 1. AT TIME	N NO. 1.	AT TIAE		1.00.	) - 290	1.00. DGZ = ( 40.0, 40.0,	40.04		_	0.0 ) AGZ = (	<u>.</u>	10.79 74.69	74.65	0.0
	***CASUALTY*** ID:	<> REPAIRABLE ITEM FOLLOWS, PK S (DEAD, MED, JLITE) = 0.00000 .3000 6.0000 2 IN LNK 10. PKF= .33 PK*# AT TGTPT 13 ( 20.0, 50.0) = .21	ITEM FOI		S (0	EAD, ME	0., LITE) 13 (	20.03	50.00	3000	90.0	8				
225	***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	* REPAIRABLE ITEM FOLLOWS. PK 3 IN LNK 11. PKF* .30 PK*# 5 IN LNK 95. PKF* .30 PK*# 8 IN LMK 13. PKF* 1.00 PK*# 10 IN LNK 95. PKF* 1.00 PK*#	11E4 F3	.30 PK*# .30 PK*# .30 PK*# 1.00 PK*#	STAN TA	S (DEAD, ME AT TGTPT AT TGTPT AT TGTPT AT TGTPT	D., LITE) 16 ( 19 ( 20 ( 21 (	\$ (DEAD,MED.,LITE) = 0.0000 0.0000 .3000 AT 19TPT 16 ( 60.6, 60.0) = .21 AT 19TPT 20 ( 20.6, 80.0) = .21 AT 19TPT 20 ( 20.0, 80.0) = 1.00 AT 19TPT 21 ( 20.0, 80.0) = 2.00	0000	0000 •21 •21 1.00 2.00	.30	0				
	** EMPL. # (VOLLEY) ***CASUALTY***'ID:	1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ = ( 4G.0. 40.6. 1 IN LMK 0. PKF= .35 PK*# AT TGTPT 11 ( 20.4. 50.0) =	N NJ. 1	.33 PK*#	1	1.00. GTPT	DGZ = (	40.03	40.63 50.0) =		_	0.0 ) AGZ = ( .13	<u>.</u>	-1.8,	60.63	0.0
	***CASUALTY*** ID:	<> REPAIRABLE ITEM FJLLGHS. PK S (DEAD,MED.,LITE) = 0.3000 .3000 6.0000 2 IN LNK 10. PKF* .50 PK** AT TGTPT 13 ( 20.0, 50.0) = .15	ITEM FJ	LLOWS. PK:	S (8	EAD, MÊ GTPT	D.,LITE) 13 (	20.05	50.03	3000	• 00	9				
	** EMPL. # (VOLLEY) ***CASUALTY*** IO: **JUNK CAS.	# (VOLLEY) 1 ( 1), WPN NO. 1. AT TIME 1.05. DGZ = ( 40.0), 40.6, ALTY*** IO: 1 IN LHK 0. PKF= .30 PK*# AT TGTPT 11 ( 20.0), 50.0) =JUNK CAS ID: 2 AT ( 20.0), 50.0). TOTAL JUNK FURTHER DAMAGED =	N NO. 1	. AT TIME .30 PK*# 50.0).	AT 1	1.05. GTPT ITAL JU	062 = ( 11 ( NK FURTH	40.03 20.93 IER DAMAG	40.C, 50.0) = ED =		, ,	0.0 ) AGZ = ( 0.09 .107	<b>.</b> .	8 0 8	58.6,	0.0
	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK S (DEAD, MED., LITE) = .3030 6.0000 0.0000 LTY*** ID: 2 IN L4K i.). PKF= .30 PK*# AT TGTPT 13 ( 20.0, 50.0) = .10 .JUNK CAS ID: 3 AT ( 60.0, 60.0). TOTAL JUNK FURTHER DAMAGED = .063</pre>	1TEM F0	LLDWS. PK : .36 PK*# /	S CD	EAD, ME GTPT ITAL JU	D., LITE) 13 ( NK FURTH	20.09 IER DAMAG	000 C. 50.0) = ED =	0000 •10	0 ° CO(	90				
	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRASLE ITFY FOLLOWS.PK S (DEAD,MED.,LITF) = 0.0000 .3000 0.0000 3 IN LNK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0) 60.0) = .15</pre>	ITEN FO	**************************************	S (5	EAD, MS	0.,LITE) 16 (	0.0	0000	3000	00°0	00				
	** EMPL. # (VOLLEY)	1 ( 1). WPH NO. 1. AT TIME	N NO. 1	AT TIME		1.C.	) = 290	1.Co. DGZ = ( 40.09 40.09	40.03		_	3.0 ) AGZ = (	-	-4.3,	73.6,	0.0
	***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FJLLONS, PK S (DEAD, MED, LITE) = C.OOCC 2 IN LNK 1C. PKF= .35 PK*# AT TGTPT 13 ( 20.0, 50.0)</pre>	TTER FO	LLOWS. PK	S (0	EAD, ME GTPT	D.,LITE) 13 (	20.03, 50.01 = .07	50.03	3000	ŏ>:	0			•	
	** EMPL. # (VOLLEY)	1 ( 1). 4PN NO. 1. AT TIME	N .40. 1	. AT TIME		1.60.	) = 290	1.60. 06Z = ( 46.0, 40.6,	40.64		_	0.0 ) AGZ = (	<b>.</b>	5.6,	5.6, 76.1,	0.0
	***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLDWS. PK S (OBAD,MED.,LITE) = C.3000 .300C C.0000 2 IN LNK 10. PKF= .3.0 PK*# AT TGTPT 13 ( 20.0, 50.0) = .05 5 IN LNK 95. PKF= .3.0 PK*# AT TGTPT 19 ( 20.0, 80.0) = .15</pre>	. ITEM FOI .0. PKF* .5. PKF*	LLO4S. PK .30 PK*# .30 PK*#	S (0 AT T AT T	EAD, ME GTPT GTPT	D.,LITE) 13 ( 19 (	20.05 20.05 20.03	50.00	300¢ •05 •15	30.0	0		`		
	** EMPL. # (VJLLEY)	1 ( 1), 4PH ND, 1, AT TIME	4 43. 1.	AT TINE		1.00.	) = 290	1.00. DGZ = ( 40.0, 40.0,	40.03		_	0.0 ) AGZ = (	<b>.</b>	15.0,	98.50	0.0

***CASUALTY*** ID:	5 IN LMK 95. PKF= .3) PK*#	AT TSTPT 19 ( 20.3)	80.0)10				
** EMPL. # (VOLLEY)	1 ( 1). 4PM NO. 1. AT TIME	1.60. 06Z = ( 40.0)	40.0, 0.0)	AGZ • (	15.4,	93.9,	0.0
***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK Z IN LNK IO. PKF* .3. PK*# 5 IN LNK 95. PKF* .3.0 PK*#</pre>	S (DEAD, MED., LITE) * 0.01 AT TGTPT 13 ( 20.0) AT TGTPT 15 ( 20.5,	.0000 .3000 6.000 50.0) = .04 80.0) = .07	900			
** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CAS:JALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	1 (1) WPN NO. 1. AT TIME 11 IN L'HK 12. PKF 1.00 PK*# 1 IN LNK 6. PKF= .30 PK*# 7 IN LNK 3. PKF= 1.07 PK*# 10: 2 AT ( 20.05 50.0).	40.03 20.03 20.03 20.03 HER DAMAG	40.0, 9.0) 50.0) = 1.00 50.0) = .06 50.0) = .60	) = 29 <b>Y</b>	21.0,	53.6,	0.0
***CASUALTY*** ID:	REPAIRABLE ITEM FOLLOWS, PK 2 IN LNK 10, PKF* .3J PK*# 0: 3 AT ( 63.J, 60.0).	S (READ, MED., LITE) = .3000 AT TGTPT 12 ( 20.0, 50, TGTAL JUNK FURTHER DAMAGED	.360c (.6000 c.cu) 50.0) * .02 AGED * .044	000			
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM GOLLTHS. PK 3 IN LHK II. PKF* .3J PK*#</pre>	S (DEAD, MED., LITE) = C.3	.3000 .300c c.coo	000			•
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	1 (). 4PN N3. 1. AT TIMT 1 IN LVK 6. PKF= .3J PK*#	1.00. 062 = ( 40.0. AT TGTPT 11 ( 20.0.	40°C, 0°O) 50.0) = 0.04	AGZ = (	33.7,	67.40	0.0
***CASUALTY*** ID:	<> REPAIRABLE ITEM FJLLOWS. PK 2 IN LNK 10. PKF* .30 PK** ID: 3 AT ( 60.5) 60.60).	S (DEAD,MED,,LITE) = 0.3009 AT TGTPT 13 ( 20.0, 50. TOTAL JUNK FURTHER DAMAGED	0 • 3000 ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	• 6000			٠
<pre></pre>	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS. PK 3 IN LNK 11. PKF* .30 PK** 5 IN LNK 95. PKF* .30 PK**</pre>	S (DEAD, MED., LITE) = C.O. AT TGTPT 16 ( 60.0, AT TGTPT 19 ( 20.0,	\$0000 - \$0000 500 - \$0009 \$0000 - \$0000	6000			
** EMPL. * (VOLLEY)	1 ( I). 4PN NO. 1. AT TIME	1.Cu. DGZ = ( 40.C)	40.0% 0.0%	• Yez • (	-17.0,	65.59	0.0
***CASUALTY*** ID:	<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS, PK 2 IN LNK &amp; 60 PKF* &amp; 30 PK**</pre>	S (DEAD, MED., LITE) = C.30 AT TGTPT 13 ( 20.0)	.300c .3000 0.CC3	000			
** EMPL。 # (VOLLEY) ***CASUALTY*** ID:	1. AT TIME .30 PK*#	1.03. 062 = ( 40.0. AT TGTPT 11 ( 20.0.	40.0, 0.0 } 50.0) = .03	AGZ * (	30.05	68.1,	0.0
***CASUALTY*** ID: **JUHK CAS**	<pre>&lt;&gt; REPAIRABLE ITEM FJLLDWS. PK 2 IN LNK 10. PKF* .3.0 PK*# 10: 3 at ( 60.0, 50.0).</pre>	S (DEAD, MED., LITE) = C.3000 AT TGTPT 13 ( 20.0, 50.0 TDTAL JUNK FURTHER DAMAGED =	.3000 c	. 6000			•
***CASUALTY*** ID: ***CASUALTY*** ID:	REPAIRALE ITEM FOLLOWS, PK 3 IN LHK 11, PKF* 30 PK*# 5 IN LNK 75, PKF* 30 PK*#	S (DEAD, MED., LITE) = C.D( AT TGTPT 16 ( 60.0, AT TGTPT 19 ( 20.0,	.00.0 .300c 0.000 60.0) = .05 80.0) = .04	000			
** EMPL. # (VOLLEY)	1 ( 1). WPH '10. 1. AT TIYE	1.30.062 = ( 40.0)	46.63 0.0)	) • Z9V	-1.5,	89.3,	0.0
***CASUALTY*** 10:	** REPAINANG ITEM FOLLOWS. PK 2 IN LUK N., PKF* ,30 PK*#	S (DEAD,MED.,LITE) = 0.00 AT TGTPT 13 ( 20.0,	0.000c .3000 C.600	000			
** EMPL. # (VOLLEY)	I ( I) . YPH ND. I. AT TING	1.00.062 = ( 40.0)	40.0,	) - Z9V	8.0,	82.0,	0.0
***CASUALTY*** ID: ***CASUALTY*** ID:	<pre>&lt;&gt; REPAIPASLE ITEM FOLLOWS. PK 2 IN LNK 10. PKF= .3. PK*# 5 IN LHK 95. PKF= .3. PK*#</pre>	S (DEAD, MED., LITE) = 0.00 AT TGTPT 15 ( 20.0) AT TGTPT 19 ( 20.0)	0000 • 3000 0 0000 50°0 = 60°08	000		•	•
** EMPL. # (VOLLEY) ***CASUALTY*** ID: JUNK CA3	1 ( 1), 4Ph NO, 1, AT TIME 1 IN LW 6, PKF* ,30 PK*# ID: 2 AT ( 20,09, 50,0),	1.00. DGZ # ( 40.0) AT TGTPT 11 ( 20.0) 50 TOTAL JUNK FURTHER CAMAGEO	40.0, 0.0) 50.0)02 E0100	AGZ = (	12.3,	60.53	° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °
•	REPAIRABLE ITEM FOLLOAS. PK	S (DGAD,MED.,LITE) = .30	0°0 0000°3 nune	0000			

***CASUALIY*** ID: 2 I:1 L.IK 10. PKF" .30 PK*# AT TGTPT 13 ( 20.0, 50.0) = .00 Junk cas Id: 3 AT ( 60.0, 60.0). Total Junk Further Damaged = .015		
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS.PK S (DEAD,MED.pLITE) = C.NCJO .3000 D.CODD ***CASUALTY*** ID: 3 IN LNK 11. PKF= .3J PK*# AT TGTPT 16 ( 60.0) = .04</pre>		
** EMPL. # (VOLLEY) 1 ( 1). 4PN NJ. 1. AT TIME 1.00. DGZ = ( 46.0. 40.6. 0.0 ) AGZ = ( 23.3. 58.5. ***CASUALTY*** ID: 1 IN L4K 6. PKF= .3, PK*# AT 15IPT 11 ( 20.6. 50.0) = .01	58.53	•
<pre>***CASUALTY*** ID: 2 IN LNK 10. PYF= .30 PK # AT TGTPT 13 ( 20.0) # .30JUNK CAS ID: 3 AT ( 00.0)</pre>		
<pre>&lt;**#CASUALTY*** ID: 3 IN LNK ll. PKF* .3v &gt;&lt;** AT TGTPT l6 ( 60.0) = .02</pre>		
** EMPL. # (VOLLEY) 1 ( 1), WPN 4J. 1. AT TIME 1.00. 062 * ( 40.0, 40.0, 0.0) AGZ * ( 24.8, 96.0)JUNK CAS ID: 3 AT ( 63.0, 53.0). TOTAL JUNK FURTHER DAMAGED * .007	0 .0.90	•
<pre>&lt;&gt; REPAIRABLE ITEM FOLLOWS.PK S (DEAD.MED./LITE) = 0.0000 .3006 0.0600  ***CASUALTY*** ID: 3 IN LNK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.4) 60.6) = .02  ***CASUALTY*** ID: 5 IN LNK 95. PKF= .3) PK*# AT TGTPT 19 ( 20.0) 80.0) = .02</pre>	•	
** EMPL. # (VOLLEY) 1 ( 1), 4PN NJ. 1. AT TIME 1.90. DGZ = ( 40.0, 40.0, 0.0) AGZ = ( 36.5, 75.9,	•	•
<pre></pre>		
** EMPL. * (VOLLEY) 1 ( 1), WPN NO. 1. AT TIMC 1.0C. DGZ = ( 4G.C.) 40.0. 0.0 ) AGZ = ( 1.7. 84.1) ***CASUALTY*** ID: 5 IN LNK 75. PKF* .3. PK*# AT TGTPT 19 ( 20.0.) 80.0) = .01	4.1,	•
** EMPL. # (VOLLEY) 1 ( 1) 4PH 40. 1. AT TIME 1.00.0GZ = ( 40.0, 40.0, 0.0) AGZ = ( 5.3, 85.2, ***CASUALTY*** ID: £ IN LMK 95. PKF= .3) PK*# AT TOTPT 19 ( 20.0, 80.0) = .01	5.2, 0	:
** EMPL. # (VOLLEY) 1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ * ( 40.G, 40.G, 0.0) AGZ * ( 15.6, 70.8, ***CASUALTY*** ID: 1 IM LNK 6. PKF* .3) PK** AT TOTPT 11 ( 20.0, 50.4) * .01	6, 6	•
<pre></pre>		•
** EMPL. # (VOLLEY) 1 ( 1). 4PH NG. 1. AT TINE 1.00. DGZ # ( 40.0). 40.0, 50.0) AGZ # ( 8.3) 53.5, ****CASUALTY*** ID: 1 IN LHK 0. PKF# 3?? PK*# AT TGTPT 11 ( 20.0) # .01	.5,	•
** EMPL. * (VOLLEY) 1 ( 1), WPN ND, 1, AT TIME 1,60, DGZ = ( 46,6, 40,6, 0,0) AGZ = ( 8,1, 62,2) ***CASUALTY*** ID: 1 IN LHK 5, PKF= ,3C PK** AT TGTPT 11 ( 20,0, 50,0) = ,01		•
<pre>&lt;&gt; &lt;2 &lt;2 &lt;2 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4 &lt;4</pre>		
** EMPL. * (VOLLEY) 1 ( 1). JPN NO. 1. AT TINE 1.00. DGZ * ( 40.0, 46.0, 0.0) AGZ = ( 31.5, 77.2)		•
<pre>&lt;&gt;</pre>		
** EMPL. * (VOLLEY) 1 ( 1), 4PM NG. 1. AT TIM? 1.60. DGZ * ( 46.0, 40.0, 0.0) AGZ * ( 37.0, 101.6,	1.6, 0.	•
<pre></pre>		

*	EMPL. # (	(NOTFEX)	61	~	2) • 3	ON HOE	•	i. AT	TINE	ų,	300.00	29G	•	0.0		•0•0	٥ • د	_	462 ·	~	6.8,	26.0,	0.0
* *	***CASUALTY*** THREAT TO RIP	AIR	\$ 4.5	REPAIRABL 2 IN LNK 295 Un 300, 1	6PAIQABLE ITEM IN LNK 10. PK .295 UHITS DF .307, .309, .	11 17 17 17 17 17 17 17 17 17 17 17 17 1	6M F5 PKF# 0F 15 • 300	JLLOW 3.3.	EM FOLLOWS, PK S PKF= .3. PK*# AT OF IO 3 AT COOR .300, AND RN = O. PEMOVED FROM	• PK S (D PK*# AT T AT COGROS RI = •2 D FROM SH	5AD, 5TPT 40	MED.JL 13 10.6,	1116)	20 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	53.0	e	.000	6000.	•				
* * *	EMPL• # ( T4REAT T3	* (VOLLEY) TO REPAIS P	2F XS. <b>∗</b>	.150 UNITS 9	23 . 4 25 . UR 35 . UR	ILTS OF STAND SOLD	10. 10. 10. 10. 10. 10. 10. 10. 10. 10.	L. AT 2 2 3 AN ENT9	. 1. AT TIYE 300.00 F ID 2 4T CORROS .350, AND RN * .157 UT INTO MEDIUM JUNKPIL	300.0 50805 * 157 # JUNKP1	• <del>-</del>	0.00	* C1	9.0	•	0.0	0	_	• 29 <b>4</b>	· -	-50.9,	24.8,	0.0
* * * * * *	* EMPL. * (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	VOLLEY) Y*** ID Y*** ID Y*** ID Y*** ID	"4 N. 15 17	SEEE	22 CNK CNK CNK CNK CNK	40 NG 40 8	****	2. AT	F C C C C C C C C C C C C C C C C C C C	A T T A T	360.00. TGTPT TGTPT TGTPT	062 2 3 4		00000	2001	3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_	A G Z	<u>.</u>	7.39	13.9,	0000
#	***C A SUAL T Y * * *	10	••	<pre>&lt;&gt; REPAIRAB 2 IN LNK</pre>	IRAB L .nk	Lë ITë ić. P	ΣX	FOLLOWS ★ •30	S. PK PK**	N A	(DEAD, MED	ED., J.L.	175)	20.03	0.0000 50.00	e	., 000	0.0000				•	
*	** EMPL* # (VOLLEY)  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:  ***CASUALTY*** ID:	VGLLEY) Y*** ID Y*** ID Y*** ID	%	2222	2) LNK CNK CNK LPK	4PN NG	O. 1 PKF= PKF= PKF=	1.6. 1.6. 1.8. 1.8. 1.8. 1.8. 1.8. 1.8.	T X X C C C X X X X X X X X X X X X X X	AT AT	360.00. 15121 16121 16121	062 1 2 3		00000	60.00	61111	1.00 2.21 1.11	_	¥6Z	_	-3.5,	2.1,	
* * * * *	* EMPL* # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY** ID:	VOLLEY) Y*** IP: Y*** ID: Y*** ID:	2 4 4 4 6	SHR	CNY.	4PN VQ 4.29 9.53. P	PKF PKF FFF FFF	1. AT 30 30	PK***	A T A	300.00. TGTPT TGTPT TGTPT	06.2 2 3		000	2000	3111	0.0 15 07	_	AGZ .	<u>.</u>	7.3,	.6.4	0.0
*	EMPL. # (VNLLEY) ***CASUALTY*** ID:	VOLLEY)	10	NI T	13. 1 LAK	42N 110	10. 1 PKF=	1. AT	7570 PK*#		3CO.03. Af TGTPT	062 11		20.49	50.01	0.0	0.0	_	4 6 2 ·	<u>.</u>	8 • 8 •	29.7,	0.0
*	** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** IO: ***CASUALTY*** IO:	VOLLEY) Y*** IO Y*** IO Y*** IO	9 4 rc o	o z z z	žžžš	4PH NO 4. P 95. P	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1. AT 3.3.	PX + + + + + + + + + + + + + + + + + + +	444	333,09.	062 2 3		2000	0000	30000	0.0	_	462 ·	<u>.</u>	3.23	15.1,	•••
ZZT]	ZZTIMERZZ F	FINISHED	35	Pt.IC.	37.	C PUT	¥ E	10	.443.	100	H 10	EMORY	~	ITOP )	• 525	266			•				
*	<***> BEGIN	BEGINNING REPLICATION	PLICA	T1 0N	33	•	RND.	GM	SEEDS	¥	63323	36237•		337987587•	37. 177	728986	81.		6664	÷	5999	**	
# 22	* 4 4 4	VOLLEY) Y*** ID CC UNIT UC UNIT	FROM FROM	See ?	• × 01 01 0	WP4 NO 95° P AT TGT AT TGT	• * • • *	्र • लं • •	27 × 20 5	A 4 5		PAILURE FAILURE	~ <b>~</b> ~	30.3% TIME TIME	000 600 1260	, v v	2.00 2.00 .<	_	¥62 •	U.	8 4 • 4 •	8- 80 .	•
221	2211MER23 F	r in ishe u	Ke Pr 10	• د ح	• 8 8		H E	9	•725•	3		F 3 0 F 3 F	_	1106	•	5							

5999. <***>

*666

65933711C. 237987587. 1468027671.

RND. NJ. SEENS .

33.

<***> 8EGINNING REPLICATION

87.2, 0.0)		96.0, 0.0)		74.7, 0.0 )			85.6, 0.0	•	67.0, 0.0		81.3, 0.0		109.9, 0.0		105.7, 0.0		91.2. 0.0		100.6, 0.0		
96.8,		80.1,		46.93			74.2,		96.3,		56.93		51.7,		59.69		92.39		55.3,		76.0
) = Z9	3000 0°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°	0.0 ) AGZ = (	.3000 C.6000 * .21	0.0 ) AGZ . (	.3000 0.0000 30 .153	C.6000 C.6000 15 12	0.0 ) AGZ . (	.3000 C.C000 = .10	0.0 ) AGZ = (	.3000 0.0000 07	0.C ) AGZ = ( .160	00000 000000	0.0 ) AGZ . (	. 3000 6. 0000	0.0 ) AGZ = (	.300£ ¢.6000 = .02	0.0 ) AGZ = (	.3000 0.0000 02	C.0 ) AGZ = (	.300C C.COUD	2 0 7 467 = 7
( 1). WPH H3. 1. AT TIME 1.50. DGZ = ( 43.0, 40.0)	* REPAIKABLE ITEM FULLDWS. PK S (DRAD,MED.,LITE) = 0.0000 .3 3 IN LNK .1. PKF= .3. PK*# AT TGTPT 16 ( 60.6, 60.0) =	1 ( 1) . 4PN NO. 1. AT TIYE 1.30. DGZ * ( 40.0, 40.0,	REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITF) = 0.0000 .3 3 IN LNK 11. PKF= .3J PK*# AT TGTPT 16 ( 60.0, 60.0) =	1 ( I). YPM NO. 1. AT TIME 1.00. D62 . ( 40.0, 40.6,	PAIRABLE ITEM FOLLOWS. PK S (OGAD,MED.,LITE) = 0.0000 N LAK 10. PK== .34 PK*# AT 191PT 13 ( 20.0, 50.0) 3 AT ( 60.0, 60.0). TOTAL JUNK FURTHER DAHAGED =	<pre>&lt;&gt; RePAIRABLE ITEM F71LDWS.PK S (DEAD.MED.,LITE) = .3000 C.( 3 IN LNK 11. PKF= .30 PK*# AT 75TPI 16 ( 66.0, 60.0) = 1 IN LNK 6. PKF= .30 PK*# AT 75TPI 16 ( 66.0, 60.0) =</pre>	1 ( 1). APN NO. 1. AT TIME 1.60. DGZ * ( 40.69 40.65	. REPAIRABLE ITEM FOLLOWS. PK S (DĘAD,MED.,LITE) = C.UOOO .3 3 IN LNK 11. PKF= .35 PK*# AT TGTPT 16 ( 60.0, 60.0) =	1 ( 1). 4PN NJ. 1. AT TIME 2.00. DGZ = ( 40.09 40.09	. REPAIRABLE ITEM FDLLONS. PK S (DEAD,MED.,LITE) = 0.0000 .: 3 IN LNK 11. PKF= .3.7 PK*# AT TGTPT 16 ( 60.0, 60.0) =	1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ * ( 40.C, 40.C, 10:C) 3 AT ( 63.0, 57.0). TOTAL JUNK FURTHER DAMAGED **	<pre>&lt;&gt; REPAIRABLE ITEM FOLLUJS. PK S (DEAD.MED.,LITE) = .3000 C.o. 3 IN LHK 11. PKF= .35 PK*# AT TGTPT 16 ( 60.0.) = 03.0) = 1 IH LNK 6. PKF= .30 PK** AT TGTPT 18 ( 60.0.) 60.0) =</pre>	1 ( 1). 4PH 49. 1. AT TIME 1.00. DGZ = ( 40.0, 40.0,	. REPAIRABLE ITEM FOLLOYS. PK S (DEAD.MED.,LITE) = 0.0000 .3 3 IM LHK 11. PKF= .3.7 PK*# AT TGTPT 16 ( 60.0, 60.0) =	1 ( 1) 4 4PN NG. 1. AT TIAS 1.00. DGZ * ( 40.0, 40.0,	REPAIRABLE ITEM FOLLOYS, PK S (DEAD,MED.,LITE) = 0.JUGC .3 IN LNC 11. PKF= .3U PC*# AT TGTPT 16 ( 60.0, 60.0) =	1 ( 1). 4PH 40. 1. AT TIME 1.C. DGZ = ( 40.0, 40.0,	<pre>&lt;&gt; R[PATQABLE ITEM F3LL7,45* PK S (DEAD, MED, LITF) = 0.0000</pre>	1 ( 1), WPH HO, 1, AT TIME 1,60, 06Z = ( 40.0, 40.0,	REPAINABLE ITEM FULLOYS, PK S (DEAD,MED.,LITE) = 0.00000 .3 IN LYK 11. PKF= .30 PK*# AT TOTPT 16 ( 60.0, 60.0) =	
** EMPL* # (VOLLEY) 1	<> ***CASUALTY*** ID: 3	** EMPL. # (VOLLEY) 1	<> ***CASUALTY*** ID: 3	** EMPL. # (VOLLEY) 1	***CASUALTY*** ID: 2 I **JUNK CAS** ID:	<pre>&lt;&gt; ***CASUALTY*** ID: 3 ***CASUALTY*** ID: 1</pre>	** EMPL. # (VOLLEY) 1	<> ***CASUALTY*** ID: 3	** EMPL. # (VOLLEY) 1	<pre>***CASUALTY*** ID: 3</pre>	** EMPL. # (VOLLEY) I	***CASUALTY*** In: 3	** EMPL. * (VOLLEY) 1	<>> ***CASUALTY*** ID:	** EMPL. # (VOLLEY) 1	<> ***CASUALTY*** ID: 2	** EMPL. # (VOLLEY) 1	<>> :: ***CASUALTY*** I:: 5	** EMPL. # (VOLLEY) 1	<pre>&lt;&gt; <pre>&lt;&gt; <pre>&lt;</pre></pre></pre>	

0		0		ې		Ö		0	ô	•								•		
0		0.0		0.0		0.0			0	ò				•						
98.89		106.6,		1.6,		9.5,		0.43	3.8,	75.1,			< <b>***</b> >				<b>*</b>	•	<b>*</b>	
				81		79		80	73								•			
92.4,		51.1,		72.6,		84.1,		72.6,	73.4,	76.1,			5999				5999		5999	
Ų.		J		Ų		u		J	J	_										
= Z:		* 7		* 29¥		* 29¥			b N				.666		<b>x</b>		• 666 •		*6667	
) AGZ	0000.	) AG	000000	~	0.000.0	)¥	0000•	) AGZ	) AG	) AGZ			•				4		•	
0.0	٥,	•	Ö	0.0	õ	3.0	ာိဇ္ဇ	0°0 00°	0.0	0.0 .03 			:				.•		.•	
	3000		.3006		3000		3000			_			38394		×		75148		6570577	š
40.04	<u> </u>	40.04	6	40.04	=	40.04	<u> </u>	40.05 60.09	40.09 60.00)	40.03 60.03 1320.00	52590		123838	61.00	0.00	52590	18689751	52590	6265	240.00
•6	000000	ŝ	9000.0	6	0.000.0	Š	000000			_3	•		25.		_	•		•	÷ 6	24
40.03	60.09	40.0	60.09	40.0	60.09	40.0	60.09	40.03	40.09 60.09	40.0 60.03 TIME	ITOP )		545822	TIME	TIME	1100)	15458225•	I TOP )	458225	AT TIME
<b>.</b>	~	<b>.</b>	ITE)	<u>.</u>	ITE)	<b>~</b>	ITE)	~	~	~ 14	_		13	AT AT	AT		इत	E -	154	
290	(DEAD,MED.,LITE TSTPT 16 (	290	(DEAD,MED.,LITE) TGTPT 16 (	296	(DEAD, MED., LITE) TGTPT 16 (		(DFAD,MED.,LITE) TGTPT 16 (	062 18	06 <i>7</i>	1.00. DGZ = TGTPT 18 ( MED FAILURE LITE FAILURE	TOP OF MENORY		39116.	FAIL URE FAIL URE	11.02	MEMORY (	525.	HEMORY	667.	A LITE FAILURE
.00.	AD, ME TPT	1.0C.	AD, ME TPT	1.03.	AD, ME TPT	1.63. DGZ	AD, ME TPT	2.00. TGTOT	1.00. TGTPT	19191 19191 MED FA	JF ME		560E7T	TE FA	2.1 2.1		193142252	OF AC	525728667	TE FA
-	-		-	H	<b> -</b>	1	S (DF AT TG	AT TĜ	AT TG	<b>⊢</b> ∢∢	TOP			A LITE		T30 0F		130		A LT
TIME		TIME	9. * 7. *	すずが		工工		71.4E	TIM PX**1	T TIME A 13 HAD 16 HAD	3.2		SEEDS =		dAD	25.	= 56378	.626.	* SCEDS	15 '1AD
AT T	.1045. PK	AT T	EM FOLLOWS. PKF = .30 PI		ë# FOLLC4S. PK PKF* .31 PK*≇		FOLLOWS. PK	A I	AT T.	47 T • 37 n 13	17.382.		•	16	13	17, 305,		17.6		
1.	£ #.	<b>-1</b>	F3LL	1. AT	₽.	1. AT	FOLL		-:				. 43	PT -	-		). Hi			PT.
	ITEM FF	다	-	% 0 8	-	TPN NO.	ITER F	N NO. 3	WPN NO.	WPB NJ. 6. PKF. AT TGT. P	CP-JTIM		C.M.O.	161.	• •	UTIM=	840.	91 I.A=	RNO.	rgr.
Hdž.	REPAIRABLE I 3 IN LHK II.	. YPA		N Hor.	REPAIRABLE I	. ₹PN		<u> </u>	* * * * * * * * * * * * * * * * * * *	* 4PE K 6 2 AT 3 AT	30 °69		4.0	3 AT	3	40. CPUT	4 I. •	41• CPHT	43.	3 AT
3).	PAIR H LIII	1).	- KEPAIRABLE 3 IN LMK	(1	PAIR.	1).	REPAIRABLE IN LNK I	1 ( 1).	( 1). IN LAK	ลร			NO NO	661			χ.		N.	
о Н	* * * * * * * * * * * * * * * * * * *	7	\$ <b>₹</b>	7	4	-1	3 I	1 (	) [	PON I	REPLIC.		ICAT	FRON I	1 502	REPLIC.	I C A T E	al plic.	CATI	1.6-55 UNIT FROM ID
Ç	••	£		2		ίζ.		7) ID:	(Y)	7) 110: 111: FI	E0 8		REPL	E TINU	-	₩ ₩	አቸP L		REPL	i Li
(אפררפג)	* * *	(VOLLEY)	***	(VJLLEY)	* * *	# (VOLLEY)	**	/3LLE Y***	/*** /01:E	7*** 7*** 00 UN	FINISHED	•	5 X 1 Z	200 O	<u> </u>	F IN I SHED	ING	FINISHED	NING	NO 50
#	UALT		UALT	*	UALT		(IALT)	# C	# (	# C UALT 1.01			BEGINNING REPLICATION	1.036	3		BEGINNING REPLICATION		BEGINNING REPLICATION	۲۰۰۲
EMºL.	***CASUALIY*** ID	** EMPL. #	***CASUALTY*** ID:	** EMPL.	***CASUALTY*** ID:	** EMP L.	***CASUALTY*** ID:	EMPL. # (VOLLEY) ***CASUALTY*** ID:	EMPL. # (VOLLEY) ***CASUALTY*** IO:	** EMPL. # (VOLLEY) 1 (	ZZTIMERZZ					zz timerz:	8 ***	ZZTIHERZZ		
*	*	*	*	*	#	*	*	* *	# * *	* ^ ^	22T)		<b>**</b> *	^ ^ ?	`	221	*	2211	<b>***</b>	<b>^</b>
										230										

* * * * * * * * * * * * * * * * * * *		<b>*</b>		<b>*</b>	68.83	48.1,	84.35	71.3,
*6665		\$999		5999	101.4,	98.99	82.1,	101.6,
\$ 66 6		*666*		•6664	A62 = (	000	AGZ = (	, 46Z = (
IIT FROM ID 2 AT TGT. PT. 13 HAD A HED FAILURE AT TIME 1200.00 <<< IIT FROM ID 2 AT TGT. PT. 13 HAD A MED FAILURE AT TIME 1380.00 <<< IED REPLICATION 43. RND. NO. SEENS = 1558175207. 1454620621. 224755416.	FROM ID 3 AT TGT. PT. 13 MAD A LITE FAILURE AT TIME 121.0C << FROM ID 2 AT TGT. PT. 13 MAD A LITE FAILURE AT TIME 121.0C << FROM ID 3 AT TGT. PT. 15 MAD A LITE FAILURE AT TIME 370.0C << FROM ID 3 AT TGT. PT. 15 MAD A LITE FAILURE AT TIME 1020.CC << FROM ID 3 AT TGT. PT. 16 MAD A MAD FAILURE AT TIME 1020.CC << FROM ID 2 AT TGT. PT. 13 MAD A LITE FAILURE AT TIME 1020.CC << FROM ID 2 AT TGT. PT. 13 MAD A LITE FAILURE AT TIME 1140.CC < 	REPLICATION 44. RND. NO. SEEDS = 660923458. 242857836. 1388831029.	FROM ID 3 AT TGT. PT. 16 HAD A LITE FAILURE AT TIME 420.00 << FROM ID 3 AT TGT. PT. 15 HAD A LITE FAILURE AT TIME 900.00 << FROM ID 2 AT TGT. PT. 13 HAD A MED FAILURE AT TIME 1140.00 << FROM ID 3 AT TGT. PT. 16 HAD A DEAD FAILURE AT TIME 1380.00 << REPLIC. 44. CPUTIM= 18.690. TOP UF MENURY ( ITOP ) = 52590	REPLICATION 45, RND, NO, SEEDS = 351x50423, 24285783C, 553206486.	1 ( 1), WPH HB, 1, AT TIME 1,00, DGZ = ( 40,0), 40,0, 0.0), ( < PEPAIRABLE ITEM FOLLOYS, PK S (DEAD,MED, LITE) = 0,0000 ,3000 0,0000	1 ( 1). 4PN MO. 1. AT TIM; 1.50. DGZ = ( 40.6, 45.6, 0.0) (** REPAIRABLE ITEM FOLLOWS. PK S (DEAD,MED.,LITE) = 6.0006 .3000 C.000 3 IN L1K 11. PKF= .31 PK** AT TGTPT 16 ( 60.0, 60.0) = .21	( 1). JPN NO. 1. AT TIME 1.60. DGZ = ( 40.0, 40.0) REPARAGETEM FOLIOWS, PK S (DEAD.WEDITE) = 0.0000 .3000	( 1). YPH MM. 1. AT THE 1.00. DGZ = ( 40.0) 40.6; 0.6
22TIMERZZ FINISHED - 4.06 UNIT	>>> 136 UHIT   >>> 136 UHIT   >>> 1.360 UNIT   >>> 1.060 UNIT   >>> 1.600 UNIT   >>>> 1.600 UNIT   >>>> 1.600 UNIT   >>>> 1.600 UNIT   >>>>>>>> 1.600 UNIT   >>>>>>>>>> 1.600 UNIT   >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	<***> BEGIANING REP	1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT 1.000 UNIT	<***> BEGINNING REPO	** EMPL. # (VOLLEY) ***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*** ID:	** EMPL. # (VOLLEY)	***CASUALTY*** ID: ** EMPL. * (VOLLEY)
			231					

0.0

0.0

0.0

64.1,

101.19

J.C ) AGZ = (

40.04

46.69

1.0f. 062 m (

1). WON NO. I. AT TIME

** EMPL. # (VOLLEY)

***CASUALTY*** 10:	> REPAIRABLE ITEM F7LLUAS. 2K S (DGAD,MED.,LITE) # 0.0030 3 IN LUK 11. PKF= .30 PK*# AT TGTPT 16 ( 60.0) 60.0)	, 3000 C.COOO			
** EMPL. # (VOLLEY) 1	1 ( 1). 4PN NO. 1. AT TINT 1.60. DGZ = ( 40.0).	40.C, 9.6 AGZ . (	88.7.	77.5,	0.0
<pre>&lt;&gt; <pre>&lt;&gt; <pre>&lt;</pre></pre></pre>	REPAIRABLE ITEM FOLLOWS, PK S (DEAD,MED.,LITE) = 0.000 i IN LNK 11.0 PKF= 0.30 PK*# AT TGTPT 16 ( 60.0)	\$000 ° 3000 ° 3000			
** EMPL. # (VULLEY) 1	1 ( 1), 4PH MO, 1, AT TIME 1,000, DGZ = ( 40.0) 4	) = 298 ( 0.0 ) 40.04	90.2,	53.8,	0.0
***CASUALFY*** ID:	S REPAIRABLE ITEM FOLLOMS. PK S (DEAD,MED.,LITE) * 0.0000 BIN LNK li. PKF* .3, PK*# AT TGTPT 16 ( 60.C, 60.0)	0000 0000000000000000000000000000000000			
** EMPL. # (VOLLEY) 1	1 ( 1). 4PN 40. 1. AT TIME 1.00. 062 * ( 46.0, 4	40.C, 0.0 AGZ = (	90.2,	58.9,	0.0
<>> ***CASUALTY*** ID: 3	* REPAIRABLE ITEM FULLOHS. PK S (DEAD, MED., LITE) * 0.0000 3 In Lht 11. PKF* .3.) PK*# AT TGTPT 16 ( 60.0) 60.0)	) .3000 0.0000 . (0) = .02			•
** EMPL. * (VOLLEY) 1	1 ( 1). 4PN NO. 1. AT TIME 1.00. DGZ = ( 40.0, 4	40.C3 0.C ) AGZ = (	92.6,	73.8,	.0.0
<>> ***CASUALTY*** ID: 3	REPAIRABLE ITEM FOLLOYS. PK S (DEAD,MEO.,LITE) . G.A.   IN LNK 11. PKF= .3.) PK*# AT TGTPT 16 ( 60.0)	1000 .3000 6.€000 66.0) # .02		•	
** EMPL. # (VOLLEY) 1	1 ( 1), 4PM MD, 1, AT TIME 1,00, DGZ = ( 40.0, 4	40.03 0.0 ) AGZ = (	87.0,	75.23	0.0
<pre>***C4SUALTY*** ID: 3</pre>	** REPAIRABLE ITEM FOLLOWS, PK S (DEAD, MED., LITE) = 0.3630 3 IN LWK 11, PKF= .3C PK*# AT TGTPT 16 ( 66.3, 60.0)	0 .3000 0.000C			•
** EMPL. # (VGLLEY) 1	1 ( 1) 4PH NG. 1. AT TIME 1.90. DGZ = ( 40.0, 40.0, ID: 3 AT ( 64.0, 60.0). TOTAL JUNK FURTHER DAMAGED =	:3.0, 0.0 ) AGZ = ( = .292	78.4,	59.9,	0.0
<pre>&lt;&gt; ***C. ;UALTY*** ID: ***CASUALTY*** ID: </pre>	REPAIRABLE ITEM FOLLDMS. PK S (DEAD,MED.,LITE) * .3 IN L4K ii. PKF* .3 PK*# AI TGTPI 16 ( 60.0). III LNK 6. PKF* .3 O PK*# AI TGTPI 18 ( 66.0).	000 0.0000 0.0000 60.0) = .01 60.0) = .12			
** EMPL. * (VOLLEY) 1	1 ( 1) . WPN MO. 1. AT TIME 1.30. DGZ * ( 40.0) 4	40.6, 0.0 AGZ = (	94.35	63.69	0.0
<pre>***C 4SUALTY*** I 0:</pre>	REPAIRABLE ITEM FULLNUS. PK S (DEAD,MED.,LITE) = 0.	0000 .3000 0.0000 60.0) = .01			
** EMPL. # (VOLLEY) 1	1 ( 1). WPN HO. 1. AT TIME 1.50° DGZ * ( 40.0) 4	40°C3 0°0 ) AGZ * (	95.0,	67.3,	0.0
<pre>***CASUALTY*** ID: 3</pre>	REPAIRABLE ITEM FOLLOWS, PK S (DEAD,HED,,LITE) = 0.0 S IN LNK 11. PKF= .30 PK*# AT TGIPT 16 ( 60.0)	000 .3000 00000			
** EMPL. # (VOLLEY) 1	1 ( 1). JPH NJ. 1. AT TTME 1.00. DGZ = ( 46.6, 4	40.00 0.0 AGZ = (	16.69	68.62	0.0
<pre>***CASUALTY*** ID: 3</pre>	REPAI948LE ITEM FDLLDWS, PK S (DEAD,MED,,LITF) = 0.0 5 IN LMK 1. PKF= .33 PK*# AT TGT9T 16 ( 60.6,	000 .3000 .0000			
** EMPL. # (VOLLEY) 1	1 ( T) . 494 NO. 1. AT TIME 1.64. DGZ = ( 40.0)	40.C, 0.0 ) AGZ m (	86.0,	41.8,	0.0
<pre>&lt;&gt;  ***CASUALTY*** 10: 3 &gt;&gt;&gt;</pre>	CEPAIRABLE ITEM FOLLOWS, PK S (DEAD, MED, LITE) # 0.0 IN LTW, 12. PKF = .30 PK*# AT 1GTPT 16 ( 60.0).  ID 2 AT TGT. PT. 23 MAD A LITE FAILURE AT TIME IO 2 AT TGT. PT. 23 MAD A MED FAILURE AT TIME IO 3 AT TGT. PT. 15 MAD A LITE FAILURE AT TIME IN	3000 3000 0.000 60.0)00 300.00 <<< 900.00 <<<			
ZZTIMERZZ FIHISHLU REPLIC.	45. CPUTIM* 19.204. TOP OF MEMORY ( ITOP ) #	52590			

	0			•	•	0.0	0.0	0			
* * *	-25.8,	-14.42	***	-13,3,	-13.8,	-10.7,	-9.1,	-6.7,			
5999	14.65	2	5999.	6.6	13.5,	78.43	12.2,	11.8,		5999.	
•6664	) = 29¥	A6Z = (	•6664	) = 29 <b>Y</b>	) = 29V	) = Z9Y		) = 29V		•6664	
554.	~ ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	0.0	171.	0.0 90.0 00.0	0.0 ) .21 .21	0.0 )	0,0 115 115	0.0 .10 .10		.902.	
1424571	320.00 320.00 0.0,	0.00	664311	0.00	0.000	40.00	40.00	40.03 0.00 0.00 0.00	52590	580897	
2857	AT TIME AT TIME ( C.O,	0.00 0.00 0.00 0.00 AT TIME 1	4733776•	\$0.00 \$0.00 \$0.00	00000	(0.0%)	\$0.00 \$0.00 \$0.00 \$0.00	6 6 6 6 6 6 6 6 6 7 6 7 6 7 6 7 6 7 6 7	110P ) .	4733776.	
2729025.	AILURE AILURE DGZ =	0.00. 062 = 61PT 2 ( 6TPT 3 ( 6TPT 4 ( ITE FAILURE	916060698.	1.50. 062 = 15TPT 2 (	1.00.062 = 16TPT 2 ( 16TPT 3 (	1.00. 06Z = TGTPT 5 (	1.00. 062 = 161P1 2 ( 161P1 3 ( 161P1 4 (	1.00. 062 = 161PT 2 (	OF MEMORY (	1683678484.	
# SGB	HAD A HAD A HAD A COORD NN # .	11ME 30 PK** AT T PK** AT T PK** AT T 13 HAD A L 511. TOP	EE9S ≈ 1	TIME PK*# AT 1 PK*# AT 1 PK*# AT 1	TIME PK** AT 1 PK*# AT 1 PK*# AT 1	TIM3 PK*# AT 1	TIMG PK*# AT 1 PK*# AT 1	TEME PK*# AT 1 PK*# AT 1 PK*# AT 1	755. TOP	:Eas = 1	
NO. S	FGT. PT. 13 FGT. PT. 16 10. 47, 2. AT T1 C OF 1D 2 AT C OF 1D 2 AT C OF 1D 2 AT C OF 1D 2 AT C OF 1D 2 AT C OF 1D 3 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C OF 1D 4 AT C O	F355 6	. 110. S	1. AT 1. 33	1. AT .30 .30	1. AT	1. AT	1. AT .30 .30	6.1	. 40. 5	
	AT TGT. AT TGT. WPN 49, JMITS OF 30,000,000,000,000,000,000,000,000,000,	A PA	47. RND	WPN NJ. 4. PKF. 95. PKF.	40 PKF= 95. PKF= 5. PKF=	40H NJ. 95. PKF	40 NO. 40 PKF 95. PKF	4. PKF 95. OKF 7. PKF	. CPUTIN	4 3. RAD	
AT JON	134 ID 2 AT T	2 ( 2). 4 IN LAK 5 IN LAK 6 IN LAK 10H ID 2	EPLICATION .	1 ( 1). 4 IN LAK 5 IN LAK 6 IN LAK	1 ( 1). 4 IN LYK 5 IN LAK 5 IN LAK	1 ( 1). 10 IN LAK	1 ( 1). 4 IN LNK 5 IN LAK 6 IN LAK	1 ( 1). 4 IN LUK 2 IN LUK 5 IN LUK	GPLIC• 47	REPLICATION	
	1.900 UNIT FR3" 1.C06 UNIT FR3" 4 (VOLLEY) 2 1 TO REPAIR 3F	***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	EGINNING REPLI	* EMPL, # (VOLLEY) ***CASUALTY*** IO: ***CASUALTY*** IO:	(VOLLEY) LTY*** ID: LTY*** ID:	EMPL. # (VNLLEY) ***CASUALTY*** ID:	# EMPL, # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** IO: ***CASUALTY*** IO:	(VULLEY) LTY*** ID: LTY*** ID:	FINISH50 RE	BEGINHING REPLI	
## 8	>>> 1. >>> 1. ** EMPL. # ** THREAT	** EMPL. * ***CASUA ***CASUA ***CASUA ***CASUA ***CASUA ***CASUA ***CASUA ***CASUA	<***> BEG	** EMPL. # ***CASUA ***CASUA ***CASUA	** EMPL, # (VOLLE) ***CASUALTY*** ***CASUALTY*** ***CASUALTY***	** EMPL. # ***CASUA	# EMPL. # #**CASUA ***CASUA ***CASUA	** EMPL. # (VOLLS) ***CASUALTY*** ] ***CASUALTY*** ] ***CASUALTY***	ZZTIMERZZ	<***> 9EG	

CARREST PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PROPERTY - PRO

おければ自己によっているとは、これがあるとは、自然のなどはないない。自然のないないない。自然のないないないない。自然のないないないないないないないないない。自己としているとしているというない。自己としているというないないないないないないないないないない。

** EMPL. # (VOLLEY) 2 ( 2). 4PH NO. 1. AT TIME 337.CC. DGZ = ( 3.C.) O.C.) AGZ = ( ***CASHALTY*** 19: 15 IN L4K 95. PKF* 1.33 PK*# AT TGTPT 5 ( 80.0). 9.C.) = 2.00

0.0

. 78.7, -11.6,

***CASULITY*** 10: ***PLANIL TERF BALDING N. N. S. (REDAMELLITE) - 0.00 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	9.0	•			0.0	° .	0.0	• •	0.0
***CASUALTY*** 10: 21. 4PM NG. 1. AT TITE 300.00 00 00 0.00 0.00 0.00 0.00 0.00	•	•	# 7		7	7	9	• •	•
***CASUALIY*** ID: **C 21. 4PN NO. 1. AT TITE 300.06.062 * ( 0.0) 0.00.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 300.06.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 300.06.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 300.06.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 300.06.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 22. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT TITE 500.062 * ( 0.0) 0.0000  ***CASUALIY*** ID: **C 32. 4PN NO. 1. AT		o	5999		· .	<b>.</b>	•	7.5	•
	EMPL. # (VOLLEY) 2 ( 2). WPN NG. 2. AT TIME 300.06. DGZ = ' 0.0, 0.0, 0.0, 0.0) A ***CASUALTY*** ID: 3 IN LMK 11. PKF= .3. PKF* AT TGTPT 16 ( 60.0, 60.0) = .30	##CASUALTY*** ID: 2 IN LNW 10. 1. AT TIME 300.05. DGZ = ( C.0, 0.6, 0.6, ) AG  **CASUALTY*** ID: 2 IN LNK 10. PKF* .30 PK** AT TGTPT 13 ( 20.0, 50.0) = .30  **CASUALTY*** ID: 2 IN LNK 10. PKF* .30 PK** AT TGTPT 13 ( 20.0, 50.0) = .30  **CASUALTY*** ID: 3 IN LNK 11. PKF* .30 PK** AT TGTPT 16 ( 60.0) 60.0  **CASUALTY*** ID: 3 IN LNK 11. PKF* .30 PK** AT TGTPT 16 ( 60.0) 60.0) = .21  **CASUALTY*** ID: 3 IN LNK 12. PKF* .30 PK** AT TGTPT 16 ( 60.0) 60.0) = .21  **CASUALTY*** ID: 3 IN LNK 12. PKF* .30 PK** AT TGTPT 16 ( 60.0) 60.0) = .21  **CASUALTY*** ID: 3 IN LNK 12. PKF* .30 PK** AT TGTPT 16 ( 60.0) 60.0) = .21  **CASUALTY*** ID: 3 IN LNK 12. PKF* .30 PK** AT TGTPT 16 ( 60.0) 60.0) = .21  **CASUALTY*** ID: 3 IN LNK 12. PKF* .30 PK** AT TGTPT 16 ( 60.0) 60.0) = .21  **CASUALTY*** ID: 6.2000 C.0000 C	***> BEGIMNING REPLICATION 49. RND. NO. SEEDS = 1777369412. 4733776. 211C15260. 4999 EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT TIME 1.000. DGZ = ( 46.00, 40.00, 000) AGZ =	<pre></pre>	EMPL. # (VOLLEY) 1 ( 1). WPN NG. 1. AT TIME 1.00. DGZ = ( 40.00. 40.00. 0.0) AG <pre>***CASUALTY*** ID: 2 IN LNK 10. PKF= .3) PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY*** ID: 2 IN LNK 10. PKF= .3) PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY*** ID: 2 IN LNK 10. PKF= .30 PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY*** ID: 2 IN LNK 10. PKF= .30 PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY*** ID: 2 IN LNK 10. PKF= .30 PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY*** ID: 2 IN LNK 10. PKF= .30 PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY**** ID: 2 IN LNK 10. PKF= .30 PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY**** ID: 2 IN LNK 10. PKF= .30 PK*# AT 16TPT 13 ( 20.00. 50.0) = .21 ***CASUALTY************************************</pre>	###CASUALTY*** ID: 31.4PM N:: 1.8 IIRL 1.0C. DGZ = ( 40.0) 40.0) AG ***CASUALTY*** ID: 2 IN LNK 1 PKF* .3: PK*# AT TGTPT 13 ( 20.0) 50.0) = .15 ***CASUALTY*** ID: 3 IN LNK 11. PKF* .3. PK* AT TGTPT 16 ( 60.0) 60.000 0.0000 ***CASUALTY*** ID: 3 IN LNK 11. PKF* .3. PK*# AT TGTPT 16 ( 60.0) 60.0) = .30 ***CASUALTY*** ID: 5 IN LNK 75. PKF* .30 PK** AT TGTPT 19 ( 20.0) 80.0) = .21	EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. 4T TIME 1.00. 062 # ( 46.6, 40.6, 6.6)	EMPL. # (VOLLEY) 1 ( 1). WPN NO. 1. AT T115 1.00. DGZ m ( 40.0, 40.0, .0.0) A  **CASUALTY*** [D: ? IN LNK in. PKF .3) PK** AT TGTPT 13 ( 20.0, 50.0) = .07  **CASUALTY*** ID: 3 IN LNK II. PKF .30 PK** AT TGTPT 16 ( 60.0, 60.0) = .21  **CASUALTY*** ID: 3 IN LNK II. PKF .30 PK** AT TGTPT 16 ( 60.0, 60.0) = .21  **CASUALTY*** ID: 5 IN LNK 11. PKF .30 PK** AT TGTPT 16 ( 60.0, 60.0) = .21	EMPL. # (VOLLEY) 1 ( 1). YPN 40. 1. AT TIME 1.0C. DGZ = ( 46.0, 40.0, 0.0)

	0.0			0.0		·				•	0	•	0.0	0	0.0
	89.9,			84.42				<b>.</b>		10.1,	30.6,	9.1,	31,00,	25.8,	***12
	25.7,			19.3,				5666		-1.0,	6909	-2.1,	5.8,	18.0,	14.2,
	_			_				÷		<u>.</u>	<u> </u>	<u>.</u>	_	_	<u>`</u>
0 0	AGZ .	0	0	AGZ .	o	n		6664		. Yez	• 29¥	• Z9¥	¥62 •	• 29 <b>v</b>	• 29 <b>v</b>
000	_	000.	0000	_	0000*	6900*				•	_	_	_	_	_
3000 0 .05 3000 0	0	3000	000 G .10	0.0	0000	  		623.	×	1	.18	217.51	0.0	0.00	1.00
50.00 50.00 .0000 .3000 .3000	40.04	.0000 .3	.0000 .3 60.0) = 80.0) =	40.05	.0000 .3 50.0) *	.0000 .3 60.03 . 80.03 . 480.00	52590	. 1985870623	300.00€	00000	50.03	0000	50.0	50.03	50.03
20.03 20.03 60.03 20.03	40.04	20.05	6C.3, 20.6,	40.03	20.02	) = C 60.0, 20.0, T TIME	ITOP ) .	4733776•	AT TIME	ဝီ ဝင်္ဂဝိုင်္ဂဝိုင် ဝင်္ဂဝင်္ဂဝိ	3.02	0 0 0 0 0 0 0 0	20.02	20.03	20.03 20.03 20.03 20.03
DEAD, MED., LITE TGTPT 13 ( DEAD, MED., LITE TGTPT 16 ( TGTPT 19 (	) • Z90	ED.,LITE	ED.,LITE 16 ( 19 (	) • Z9Q	ED.,LITE 13 (	. LIT 16 ( 19 ( LURE LURE	MENORY (	1163.	FAIL URE A	D62 • C 2 C 3 C 4 C	DGZ = (	) 5 5 7 7 8 7 7 7 7 7	DGZ = ( 11 (	06Z • (	DGZ = ( 9 ( 11 ( 12 (
(9EAD, ME TGTPT (9EAD, ME TGTPT	1.60.	(DEAD, MED TGTPT	(DEAD, MED. TGTPT 1	1.00.	(DEAD, MED TGTPT	CDEAD, TGTP1 TGTP1 LITE LITE	0P 3F X	910081103	LITE F	3C() - 0U - 1GIPT 1GIPT 1GIPT 1GIPT	300.00.	333.60. TGTPT TGTPT TGTPT	3CO.CC. TGTPT	390.0C.	37,675. TGTPT TGTPT TGTPT
4	w	SAT	S I A	į.J	SAT	A P A A A		# 12	A O A	A	A	444	AT	A	A1 A1 A1
S. 2K 2K*# S. PK PK*#	TIME	S. PK.	S. PK PK** PK**	TINE	S. PK	S. PK PK*# 10 HAD 13 HAD	- 91.7	SEEDS	13 HA	T * * * * * *	TI4:	7127 PK** PK**	7135 PK*#	T135 PK*4	17 P T T T T T T T T T T T T T T T T T T
11.04S	. AT		11.04S	· AT	11.045	30. 30.	22	0	.•	1.00.1 0.00.1	• AT	A W.W.W.	. AT	. A.	• 4 • 4 • 5 • 4 • 5 • 4
PKF .30 TEM FJLLOWS PKF .30 PKF .30	ON	TEM FOLLOWS PKF* .3J	PKF .	NO. 1	ITEM FOLLO 1. PKF* .3	ITEM FOLLOWS. PK • PKF= •30 PK*# • PKF= •30 PK*# TGT. PT. 15 HA TGT. PT. 13 HA	JT IM-	RND.	GT. PT	5. • 7.7. • 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	uo. PKF=	A THE	ND. 1 PKF=	40. 1 PKF.	20. 0 X X T T T T T T T T T T T T T T T T T
	WPR	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	REPAIRABLE I 3 IN LHK 11. 5 IN LHK 95.	461	•	REPAIRABLE I 3 IN LNK 11. 5 IN LNK 95. M ID 3 AT T M ID 2 AT T	ວ	57.	AT T	5. 6. 4. W. W. W.	4PH 6.	8 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1944 6•	4P 5.	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	:	REPAIKABLE	VIP.A9 LUK LUK	:	<pre>&lt;&gt; REPAIRABLE 2 IN LVK i </pre>	LIRAB LNK LNK LNK 3	49.		^1	<b>5</b> 5555	23. ĽĶ	255. 255.	2). Lyk	۲3. نجّ	5. 5. 5. 5. 5.
REPAIRA 2 IN LNK REPAIRA 3 IN LNK 5 IN LNK	J	QEP/	REPA 3 IN 5 IN	J	KEP.	SE SE SE SE SE SE SE SE SE SE SE SE SE S	· IC ·	4110h	FROY ID	THE SECTION	2 ( 1 IN	AG O NE NE NE NE NE NE NE NE NE NE NE NE NE	) t	_ H	THE S
\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	-	<b>\$</b>	\$	~	\$		re plic	ירוכי	FAJ	N -1		<b>C</b> I	<b>(1)</b>	N	211.
10 01	LEY)	10	22	LEY)	* 10:	<pre>&lt;&gt; RE ALTY*** ID: 3 3 ALTY*** ID: 5 1 .666 UNIT FROM 3 .058 UNIT FROM 3</pre>	FINISHED	BEGINNING REPLICATION	1.00 Sec.1	E	LEY) * ID:	** 100 * 100 * 100	LEY) * ID:	LEY) * ID:	* 100 * 100 * 100
* * * \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	* (VOLLEY)	TY**	***\T	* (VOLLEY)	T Y * *	TY** 666 358	FINI	NINN	ગુલ્લ	# (VOLLEY)  ALTY*** ID  ALTY*** ID  ALTY*** ID  ALTY*** ID	CVOL TY**	( VOL TY** TY** TY**	( V9L TY**	(VOL TY**	1 7 * * 1 7 * * 1 7 * *
SUAL	*	SUAL	SUAL		SUAL	SUAL	82 23 24	<b>BEGI</b>	ų	SUAL SUAL SUAL SUAL SUAL SUAL	SUAL	SUAL SUAL SUAL	SUAL	SUAL	SUAL SUAL SUAL
***CASUALTY***  ***CASUALTY***	** EMPL.	***C ASUAL TY***	***CASUALTY***	** EMPL.	***CASUALTY***	***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID: **** ID: ************************************	ZZTIMER	<b>**</b>	<b>^</b>	** EMPL. # (VDLLE ***CASUALTY*** ***CASUALTY*** ***CASUALTY*** ***CASUALTY***	** EMPL. # (VOLLEY) ***CASUALTY*** IO	** EMPL. # (VOLLEY) ***CASUALTY*** ID: ***CASUALTY*** ID: ***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*** ID:	** EMPL. # (VOLLEY) ***CASUALTY*** ID:	** EMPL. # (VOLLEY)  ***CASUALTY*** ID:  ***CASUALTY*** ID:

111111111111111111111111111111111111111	<> REPAIRABLE ITEM FOLLDWS. PK S (DEAD, HED., LITE) = C.0000 .3000 0.6000	RAB L	11 11 12 12 12 12 12 12 12 12 12 12 12 1	M FOL	L.945.	PK	COEAL	P, MED.	i) LIT	(G)	0.0	000	3200	000-	0				
***CASUALIT*** 101	3 Id C	Ä.		F F	÷ 75.	** ** **		_	U,	3	• 5								
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	2 ( 2). 1 IN LAK		6. P	KF.	. 3.	7 1 2 4 4 A	300°. (T TGT	30. 00	7 [ ]	ر 32	စ် မ ရဲ	50.03	4PH ND. 1. AT TINE 300.00. DGZ # ( C.S., O.C., G.C.) AGZ # ( 6. PKF* .3) PK*# AT TGTPT 11 ( 20.0, 50.0) 4 .04	_	<b>V</b> 62	_	8.3,	8.3, 32.8,	•
** EMP L. # (VOLLEY)  ***C ASUALTY*** ID:  ***C ASUALTY*** ID:  ***C ASUALTY*** IO:  ***C ASUALTY*** IO:	2 23. 4 IN LUK 5 IN LUK 6 IN LUK 14 IN LUK	******	PN 30 95. P 95. P	****** *******************************	A W. W. W. C.	17.7.7. 2.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	3:0.4 VI 16T! VI 16T! VI 16T!	3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	12 M 4 L	3000	ပို့ ဗကိုဝိုဝိုလို	0.00	4. PKF# .3, 2K## AT TGTPT 2 ( C.C., 0.C.) 6GZ # ( 4. PKF# .3, 2K## AT TGTPT 2 ( C.J., 0.0) # .15 95. PKF# .3) PK## AT TGTPT 3 ( C.O., 0.0) # .15 2. PKF# .3 2. PKF# .3 2. PKF# .3 2. PKF# .3 2. PKF# .3 2. PKF# .3 2. PKF# .3	~	<b>A</b> 62		11.3, 10.1,	10.1,	·
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	2 ( 2). 1 IN L4K	** **	PN NG	KF.	AT 1	7135 >K*# 3	300.1	86. 90	) [] (	) 20	6.0	50.0)	0.0	^	AGZ	<u>.</u>	4PN NJ. 1. AT TIME 300.00. DGZ = ( 0.0) C.0, 0.0) AGZ = ( 16.5, 48.0, 6. PKF= .30 PK*# AT TGTPT 11 ( 20.0, 50.0) = .03	48.0,	-
<> <pairable (oead,="" follows,="" med,="" pk="" s="" teh=""  ="">LITE) = 5.3036 .3006 3.0009 ***CASUALTY***   ID: 3   N   NK   11. PKF* .3   PK** AT TGTPT   16   60.0) = .21</pairable>	<> 45PAI 3 IN L	IRAB L NK	ii 114.	H FOL	.37	* ** *	S (DEAL	D, MED.	, , L IT		6.0	0000	300c 0	993•	o				
** EMPL. # (VOLLEY) ***CASUALTY*** ID:	2 ( 2). 1 IN LWK	.XX	7PN 143	J. 1.	AT .	7116 2K*# J	330. NT TGT!	00. D.	32 <b>-</b>	) 22	3,00	50.05	4PN NG. 1. AT TIME 300.00. DGZ = ( 3.0., 0.0., 0.0.) AGZ = ( 6. PKF= .3.) PK*# AT TGTPT 11 ( 20.0., 50.0.) = .02	_	<b>A</b> G2	<u>.</u>		6.8, 44.8,	·
** EMPL. # (VJLLEY) ***CASUALTY*** ID:	2 ( 2). 1 IN LNK	.X.	UN Nal	J. 3.	AT	TIME A	300°.	00. D(	) [1 11 (	20	9.0	50.03	.01	~	¥62	<u>.</u>	4PN NO. 1. AT TIME 300.00. DGZ = ( C.6., 0.C. 0.0.) AGZ = ( 12.5. 33.3. 6. PKF= ,3] PK*# AT TSTPT 11 ( 20.0. 50.0) = .01	33•3•	_
ZZIJHERZZ FINISHED PIPLIC. 50. CPHIJM: 21.252. TOP OF MEMORY ( 110P ) = 5259C	Prof IC.	50.	CPHTI	# 2.	21.	252	TOP OI	NUX U	) RY	110	-	£259C							

The section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the se

0.0

0.0

FOURTH EXAMPLE KUN — CONVENTIONAL ATTACKS RUN ID # 07/13/64 10.15.55.

**** QEPEAT OF WARNINGS FOOM TIS RUN ****

HAS NO CORRESPONDINGLY NAMED ASSET - ASSUMING DUMMY LINK DUMMY LINK CREATED DUMMY LINK CREATED *!*!* WARNING *!*!* CAN NOT FIND ASSET OR LINK NAMED HANDLOAD CAN NOT FIND ASSET OR LINK NAMED REPAIR *** WARNING *** LINK HANOLDAD #!#!# WARNING #!#!#

	49 36-39 20-29 10-19 1-9 0	
RESULTS	50-59 40-49	O O M 4 M W 5 M W 4 W 6 M 6 M 7 M 8 M 8 M 8 M 8 M 8 M 8 M 8 M 8 M 8
JTION OF 1	69-39 61	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
FREQUENCY DISTRIBUTION OF RESULTS	80-69 70-79	
FREQUENC *******	8 66-96	7700900000000000000000000
	100	できょうしょうしょうけいしょう しょうしょう い こ こ と さ ら さ ら ら さ ら ら さ ら ら ら ら ら ら ら ら ら ら
(** (**	OPR CHNS	लेलव्यक्तलललल्लाव्यक्तिल्लाल्य
GFFECTIVENESS VS. TIME ************************************	e f e ec tiven= SS	1
[VENESS c* ** *****	E F F 3(	0,000,000,000,000,000,000,000,000,000,
**************************************	TIME	0.000000000000000000000000000000000000

をおかけなりは、自己のからのかのは、100mののでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mのでは、100mので

••	. 6		200	0		. 60	2	4	8	24	7	9	32	9	NI I	_ :	1.5		0	8	91	23	69	<u>۾</u>	29							٤	2	•	•			. ~	_	0 0			
7		9 0	•									•		•	•	•	•				•	-	•	٠	•				_			•		•			. ن	•	J	., c	•	,	
13 .		•	2 0	200		92	.86	. 86	98	986	. 86	• 86	• 86	• 86	• 86	0 0	•	98	98	. 86	• 86	• 86	986	<b>2</b>	90							240	TR TR		13	50		0	0	0 0	>	20	
12 .				200	92	• 92	986	98•	98		. 86	• 86				000						• 86	980	9.0	98							to 12	• • -	•	12.	50	0	0	0	<b>o</b> c	•	3.8	:
. 11		• •	25.	06	06	06.	98.	.86	98.	98.	• 86	• 86	• 86	• 8e	98.	0 d	9	9.	986	. E6	• 86	98.	98.	۵. •	9							u	• •	•		50		0	J.	o c	>	36	
10	•	,	. 1	3		4	٦.	7	٦.	7	۲,	7	7	7	7	•	: ;	٠.	7	7	7	7	5.14	٠,	7								• • [		10	50		ပ	ပ	υc	>	3.6	
0	900	0	۰ ٥	0	•	0	ထ	ø	œ	æ	œ	ø	8	φ (	200	r, a	œ	8	۵	æ	αı	á	98.	00	c					LINE1 )		/1 no.		•	•	NO NO	. 0	0	0	0 0	•	50	
ω	00.1	•	06.	06	96.	00.	98.	. 88	• 8B	• 8€	.88	• 88	.88	88.	ж ж •	0 0	88	88	•8€	.88	• 88	38.	88°	0 0	0					ED IN		0.1000	• •	•	• •	50	, O	ာ	C)	90	•	76	r
		0	6	50.	76	<b>*6</b> •	.85	•80	•86	.86	.85	•85	• 96	•86	\$ 0 0 0	9.4	8	.36	.80	.86	•86	686	ر د د د د	0.0	• 42		۵	۳	Z	T CO'INT		******		•	,	56	ပ	ဂ	، د،	<b>6</b> ) C		77	
•	1.00	. 6	10.	16.	0.01	16.	.83	•83	.83	.83	.83	•83	. 33	83	n (	0 00	0 00	88	.83	•83	•83	£	m c	? r	50.		MT TP	AYAIL	CENCIL	SE	SES	* ;	• • {	•	•	i S	0	c	، ن	o o	,	Ç	י ר
יה	2.00	S	· ·	າ	φ,	e.	۲.	۲.		۲.	۲.	۲.	٠,	•	•	•	Ċ		۲.	۲.		۲,	•	• 1	•	o	2 4 5	SETS L	Y 110.	LNK	VAILAE	*****	;	•	•	-	٠ ٦	c	φ.	o a	,		1
	3.00			.91	16.	16.		• 33			• 33	• 83			• 0			. 83		. 83			, ,	• • •	n	ATION	•	AUSEA	MITED	NUC 41.0	Z Z	*****	• •	•	•	<u>ئ</u>	ဂ	c	> -	<b>ว</b> :	,	Š	
m	1.00	.75	69.	•64	.68	• 70	.63	• 62	29.	.59	• 62	• 66	69.	χ r •	10.	40.	.65	. 62	• 64	• 60	59	29.	00,	• 0 4	•	REPLIC	ν π ν	EAK BE	EAK, L	0	HITING	****	•	•	m	5	د	၁	; ري	၁ င	,	;	,
. 2	1.00	. 79	.77	. 63	. 61	• 53	• 53	.53	.53	.53	• 53	٠ ن ن ن ز	• 50 • 50 • 50 • 50 • 50 • 50 • 50 • 50	10.	0 0	7.0	650	19.	• 50	• 53	ان	ຕຸເ	٠ د د د	•	10.	IME FOR	7	X 34	ME S	SUP	IMES	*****	•	•	• 7	=	o	s	ሳ ፡	<b>&gt;</b> ~	,	7	•
ч	• • • • • •		ထ	.89	a)	68.	co ·	co	ಌ	8	σ,	φ,	ಭ (	o o	೦ ಇ	1 60	æ	æ	œ	ø	Φ:	ლ (	2 6	ο α	•	S VS. T		# 0F	# # DE	##	E I	******			•	3	¢	<b>~</b>	. د.	ວກ		o	
	0.00	11.00	51.00	21.00	30°0¢	.0°0	0.00	20.00	26.00	30.00	50.00	00.00	20.00	200	000	0.00	00.00	20,00	20.00	20.04	50.00	20.02	360.00			INK RESULT	LINE	LINE	INE	321 321 321	LINE	*	₹	•	) 	် ၁		•	•	• •		11.00	

1<<	00000	12 24 00 14	2200021	2000 2	17 00 25 25 26	**************************************	14 30000 24	1, 2, 2, 4, 2, 4,	13 0 0 30 2<<
			0,0000						
•	m 9 C D 9 D	#00000	<u></u>	8000 <b>00</b> .	00000	700000	90c000 N	N 0 0 0 0 0	900000 N
o	25 25 20 20 20 20 20 20 20 20 20 20 20 20 20	31	WW 0400	32 32 32 32 32 32 32 32 32 32 32 32 32 3	m 0 0 0 0	60 + 0 M 0	0 0 0 0 0	64 64 64 64 64 64 64	W 0000
U	**************************************	# 0000	o	00000	, , , , , ,	2,0000	2¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢ ¢	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	\$ \$ \$ \$ \$ \$
			6,96000						
0	20000	# 00000	m00000	M00000	m00000	° 00000	00000	00000	N00000
¢,	2000	# 3 H C 3 6	# 0 H O O O	% c N O O O	23	0, c, m 0 0 0	0041260	00000	80 80 80 80 80 80 80 80 80 80 80 80 80 8
			00000				0000°	0,6000	°, ∨°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°°
n	202200	600000	000000	00000	000000	00000	000000	665000	020000
c	6,4000	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	လို ၈ စ <b>၁ ဝ</b>	0,40000	0000 × 3000	ç,	663633 54	30 C 20 C	850000 \$
ల	<b>၁</b> 00000	99090	00000	00000	000000	000000	000010	200000	000000
			12 3 0 25 15<						
c	27,00000	110000 20000	20 13 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	6 w \$ \$ \$ \$ \$	N. 60 0 0 0	21 1114 0 0 0	22 13 6 0 0 0	23 14< 0 0 0	25 152 26 20 20 20 20 20 20 20 20 20 20 20 20 20
•	30.4	1.00		• • • • • • • • • • • • • • • • • • •	00	00	000	 0	•••••
	•	17	1	2	31	37	45	<b>3</b>	 

15 00 27 24	22000022	70000	10009	W0007,	**************************************	10000%	,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	40000% V
		00 00 00 00 00						
<b>∞ 0 0 0 0</b>	% % % % % % % % % % % % % % % % % % %	00000	m 0 0 0 0 0	W 0 0 0 0 0	00000	00000	00000	ecocoe
00000 00000	% 00000	00 × 00 00 00 00 00 00 00 00 00 00 00 00	60 × 00 00 00 00 00 00 00 00 00 00 00 00	5,0400	2 N O M O O	5 0 4 0 0	24 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 × 0 × 0 0
# 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6,40000 8,40000	, , , , ,	, m m m	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , ,	, , , , , , ,	, , , ,	, , , , , ,
000000	200000	00000	<b>00000</b>	00000	000000	00000	00000	000000
00000	X 0 0 0 0 0	W 0000	600000 N	00000	90000	00000	K00000	00000
30,400 A	0000	32	00000	600000	200000	00000	70 <b>0</b> 000	0004000 **
		00000						
000000	000000	000000	000000	060000	00000	000000	000000	900000
3 3 4 5 6 6 6	00000	3000 0000 0000	00° 2° 2° 2° 2° 2° 2° 2° 2° 2° 2° 2° 2° 2°	90000	20000	20000	2000	35 20 20 20 20 20 20 20 20 20 20 20 20 20
020000	202030	၁၀၀၀၁၀	007000	030000	330000	20000	00000	032270
15 0 0 27 24<	12 20 20 20 20 20 20 20 20 20 20 20 20 20	12 14 0 0 19 23 4	14 10 10 10 10 10 10 10 10 10 10 10 10 10	13 16 0 0 17 18 18 18 18	14 0 0 19 19 18	11 14 0 20 1864	12 0 0 23 1964	#37763 8
130	00000 00000	124	5,0000	15	6113 0000 0000	800 000 000 000	119 00000	0,0000
• • • • •	• • • • • •	• • • • •	• • • • • •	• • • • • •	• • • • •	• • • • • •	• • • • •	• • • • • •
0.009	0•099	730.06	780•ú	340°	91.0.0	0.096	1020.0	1090.0

100022	700077	20003,	700017	10003%	#000 NN
			0 + 0 0 0 0		
K00000	, , , ,		w 020000	900000	m 0 0 0 0 0
# 0 H 0 0	33 6 4 4 0 0 0	# 0 4 0 0 \$ \$ \$	\$ 0 H 0 0	, v v v v v v v v v v v v v v v v v v v	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
			8 y 0000		
00000	ñ.0000	0,0000	30000	00000	00000
m03000	m00000	<b>400000</b>	00000	200000 N	K00000
mcm000	m 0 m 0 0	H 3 M 0 0 0	00 m 00 0	%0400e	70 <b>4</b> 0 <b>6</b> 0
			ð, 20 <i>3</i> U		
			000000		
			5,10000 A		
			00000		
11 14 22 196 196	124 174 174	13 14 16 18 18 18 18	12 14 0 0 14 14 14 14 14 14	11,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15,000 15	13 0 0 0 0 11 10 0
177 0000 0000	7,000 7,000 7,000 7,000 7,000	25 134 0000 0000	11.00 00000	811 \$10000	2,0000
1140.00	1200.00	1270.00.	1320.00	1386.00	1440.00

and the series of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the

COMPOUND LINK PARTS VS. TIME

AVERAGE EFFECTIVENESS USED, DVCR ALL REPLICATIONS ( NDTE: IF CPL NDT WEAK, MURE CAPABILITY MAY HAVE BEEN AVAILABLE THAN WAS USED )

2	1,33	• 65	.61	• 58	•53	.55	• 30	40	• 45	• 45	14.	
	1.00	*85	•84	• 79	•78	.78	.67	.70	3.	• 6 3	69.	•
TIME .	• •	11.00	.:	121.30	9	ç	316.05	2	26.0	480.00	žċ.	

.52	. 45	940	24.	24.	.41	44.	5¢.	· •	•51	• 45	.42	94.
			•73									
30.	80.3	40.0	910.00	66.0	626.0	090.3	40.0	200.0	270.0	320.0	386.0	440.0

SEGNENT RESUL	. / 3 LTS:	• <b>•</b> 0 JHULATI	/E TIMES	WEAKEST	VS. TIME
***	*	****	***	**	***
-	-	H	-	٠,	•
SEGMENT #1	-,°	~ 1	e -	•	
111 ) 307					
3.0	٥	Э	o	•	0
11.00	m	~	8	9	IJ
61.00	<b>3</b>	٧,	ĸ	•	Z,
121.00	•	*	12	•	•0
196.00	•	5	71	o	۰
246.00	•	8	14	9	80
310.00	<b>.</b>	4	ជ	60	m
370.00	•	•	13	•	m
420.00	ن	7	14	٠	4
460.00	<b>.</b>	07	15	۰	m
550.00	0	10	16	٥	æ
660.00	э 	10	a	•	5
99999	•	01	7.	٥	æ
736.00	0	10	13	o	-
730.00	э	7.0	n	•	4
846.00	<b>.</b>	10	٥	10	4
910.00	э 	10	13	01	4
960.00	د	93	٤٢	1.5	m
1026.00	~ 	10	14	15	*
1090.00	0	10	12	CT	*61
1146.00		10	77	10	••

Ç	C T	6	13	10	***************************************
14	350	16	15	13	***
10	0.7	70	10	10	
2	၁	>	0	0	S VS T
				•	<b>上・</b> に24
1206.00	1276.30	1320.00	1380.60	1446.00	CHAIN RESULTS VS. TIME AVERAGE EFFECTIVENESS NO. OF TIMES STRONGEST ************************************

CHAINS 1	1.66 50	.77 47	.75 50	•71 50	.71 53	.71	09.	.61 46	09.	•54 84	en. 64	20.
				• •	• •	• •	• •	• •			• •	
TINE	0.0	11.03	61.00	121.00	190.00	246.03	310.60	370.00	420.00	<b>480.</b> 03	556.00	600.03
					2	43						

. 48 48 48 48

736.00

780.00

											нергин	ORDERD DONE	.29 .17	ANY REDROGRS OF DISCONTINUED REPAIRS )
											ITEMS *****	DONE	6. 8.	
											AVERAGED REPAIRS ON REPAIRABLE ITEMS sobsebbebbebbbbbbbbbbbbbbbbbbbbbbbbbbbb	DRDERD	.70	10" INCLUDES
4.8	39.	61	6.63	48	09.	94	48	09*	0.4	19.	PAIRS ON ********* DECON	DONE		C NOTE: "ORDERO"
• •	• •	••	• •	• •	• •		• •	• •	• •	• •	REPA ***	ORDERD		tate:
840.00	910.00	960.00	1020. 00	1090. 00	1140.00	1200.00	1270.00	1320.00	1380,00	1446.00	AGE0	•		Ĵ
8	41	96	102	109	114	120	127	135	138	144	AVER.	a	2 6	
										244				

HAI BROWNED - PERSON - PERSONAL RESIDENTIAL PROPERTY OF THE PERSONAL PR

RELIABILITY-TYPE FAILURES

Q1	LITERAIL MEDOFAIL DEADFAIL	AED. FAIL	DEADFAIL	
2 FKLFT .103 .068	109.	.103	•068	
3 CRANE	. 521	• 086	040.	

# END-OF-ENCOUNTER SUMMARY

MEO DAM	0000
LIT DAM	000
CUITAND	000 000 000 000
INITIAL UNHARMED CONTAND LIT DAM MED DAM	6.62 6.23
INITIAL	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
•	
ASSET	1 TRUCK 1.30 .91 .3.36 0.00 0.00 0.00 0.00 0.00 0.00 0.0

5999. 111 4999. 4733776. 612648773. 1000 0000 869144629. 0000 0000 0000 1.70 1.70 94.59 ((( RANDOM NUMBER SEEDS AT END .

### COMPUTER YEME FOR ENCOUNTER ... 18.088 SECONDS

MNEMONIC CONTROL CARDS

1. STOP

STOP READ BY INPUT ROUTINE, NORMAL STOP TAKCK STOP CALLED FROM INPUT ROUTINE

```
#RHDICH

FKLFT 5

19.00-

19.00-

19.00-

19.30-52-33-52-33-52-53-47-13-20-

19.33-52-33-52-33-47-13-47-13-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

19.00-

1
```

# DISTRIBUTION LIST

No. of Copies	Decomination	No. of Copies	<u>Organization</u>
12	Administrator Defense Technical Info Center ATTN: DTIC-DDA Cameron Station Alexandria, VA 22314	4	Commander Armament R&D Center ATTN: SMCAR-TDC SMCAR-TSS SMCAR-RAR, Mr. Ostuni
1	Defense Nuclear Agency ATTN: STEE, Dr. Auton Washington, DC 20305	1	SMCAR-LD, Mr. Brooks Dover, NJ 07801 Comender
1	HQDA DAMA-ART-M Washington, DC 20310		US Army Armament, Munitions and Chemical Command ATTN: AMSMC-LEP-L(R) Rock Island, IL 61299
2	Commander US Army Combined Arms Center Scores Working Group ATTN: ATZ L-CAD-LN, Ms. Windler ATZ L-CAD-LN, LTC Dudley Ft. Leavenworth, KS 66027	1	Director Benet Weapons Laboratory Armament R&D Center US Army AMCCOM ATTN: AMSMC-LCB-TL(D) Watervliet, NY 12189
1	Commander US Army Combined Arms Operations Research Activity ATTN: ATOR-CAS-SP, Mrs. Etheric Ft. Leavenworth, KS 66027		Commander US Army Aviation Research and Development Command ATTN: AMSAV÷E 4300 Goodfellow Boulevard
	US Army Nuclear and Chemical Agency ATTN: MONA-WE 7500 Backlick Rd, Bldg 2073 Springfield, VA 22150	1	St. Louis, MO 63120  Director  US Army Mobility Research and Development Laboratory  Ames Research Center  Moffett Field, CA 94035
	Commander Concepts Analysis Agency ATTN: CSCA, Mr. Hurd CSCA, MAJ Affelt 8120 Woodmont Avenue Bethesda, MD 20014	1	Commander US Army Communications Research and Development Command ATTN: AMSEL-ATDD Fort Monmouth, NJ 07703
	Commander US Army Materiel Command ATTN: AMCDRA-ST 5001 Eisenhower Avenue Alexandria, VA 22333	1	Commander US Army Electronics Research and Development Command Technical Support Activity ATTN: AMDSD-L Fort Monmouth, NJ 07703

COLUMBIAN CONTRACT CHOROGO, BEALLOCATURACES IN THE COORS RESIDENCE OF THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONTRACT TO THE CONT

## DISTRIBUTION LIST

No. of Copies		No. of Copies	Organization
4	Commander US Army Harry Diamond Laboratori 2800 Powder Mill Road ATTN: DELHD-NW-RA, Mr. Giepe DELHD-NW-RA, Mr. Michaelo		Commandant US Army Armor School Directorate of Combat Developments Ft. Knox, NY 40121
	DELHD-NW-RA, Mr. Vault DELHD-NW-RA, CPT Ottensor Adelphi, MD 20783	1 2	Commander US Army Chemical School Directorate of Combat
1	Commander US Army Missile Command ATTN: AMSMI-R Redstone Arsenal, AL 35898		Developments  ATTN: ATZ N-CM-CC, LTC Draper  ATZ N-CM-CC, Mr. Collins  Ft. McClellan, AL 36201
1	Commander US Army Missile Command ATTN: AMSMI-YDL Redstone Arsenal, AL 35898	1	Commander US Army Engineer Ft. Belvoir, VA 22060
1	Commander US Army Tank Automotive Command ATTN: AMSTA-TSL Warren, MI 48090	1	Commander US Army Field Artillery School Directorate of Combat Developments Ft. Sill, OK 73503
6	Director US Army TRADOC Systems Anelysis Activity ATTN: ATAA-SL ATAA-SL, Mr. Benson ATAA-SL, Mr. Leach ATAA-SL, Mr. Pina, Mr. Kill ATAA-SL, Mr. Fernandez White Sands Missile Range,	2 3 Lby	Commandant US Army Infantry School ATTN: ATSH-CD-CSO-OR Mr. A. Fabian Ft. Benning, GA 31905  Commander US Army Missile and Munitions Center and School ATTN: ATSK-CD-CS
	NM 88002		Redstone Arsenal, AL 35897
2	Commander US Army Logistics Management Ct ATTN: ATCL-0, Mr. Cameron ATCL-0S, CPT Buck Ft. Lee, VA 23801	1 r	Commander US Army Quartermaster School ATTN: ATSM-CDC Ft. Lee, VA 23801
1	Commandant US Army Air Defense Artillery S ATTN: ATZ K-CD Ft. Bliss, TX 79916	1 ch	Commander US Army Signal School Directorate of Combat Developments Ft. Gordon, GA 30905

real increases corrections are exacted corrections as exacted corrections of the contraction in the correction of the contraction of the correction of the c

# DISTRIBUTION LIST

No. of		No. of	
Copies	<u>Organization</u>	<u>Copies</u> <u>Organization</u>	
1	Commandant	1 Pacific-Sierra Research	
	US Army Transportation School	Corporation	
	Directorate of Combat	ATTN: Mr. Wilson	
	Development	12340 Santa Monica Boulevard	
	Ft. Eustis, VA 23604	Los Angeles, CA 90025	
1	Commander	Aberdeen Proving Ground	
	US Army Development and		
	Employment Agency	Dir, USAMSAA	
	ATTN: MODE-TED-SAB	ATTN: DRXSY-D	
•	Ft. Lewis, WA 98433	DRSXY-MP, H. Cohen	
		DRSXY-CR, D. Metz	
1	AFWL/SUL	DRSXY-j, J. Blomquist	
	Kirtland AFB, NM 87117	DRSXY-GD, R. Mazan	
		DRSXY-FM, W. Copes	
2	Commander	DRSXY-FM, A. Groves	
	Defense Nuclear Agency Field	Cdr, USATECOM	
	Command	ATTN: DRSTE-TO-F	
	ATTN: FCPR, MAJ Fleming	Cdr, CRDC, AMCCOM	
	FCPR, CPT Thorton	ATTN: SMCCR-RSP-A	
	Kirtland AFB, NM 87117	SMCCR-SP	
		SMCCR-MS, Mr. Wood	
1	AMAF Industries, Inc.	SMCCR-MSS, Mr. Himmelhebe	r
	ATTN: Mr. Richard Winkler	SMCCR-MSS, Mr. Hutton	
	9062 Old Annapolis Road	SMCCR-PP	
	Columbia, MD 21045	SMCCR-PP, Dr. Baker	
		SMCCR-MU	
1	Kaman Sciences Corporation	SMCCR-RS, Mr. Sturdivan	
	ATTN: Mr. R. Burris	SMCCR-CB	
	Colorado Springs, CO 80907	Cdr, HEL	
		ATTN: DRXHE-AD, Mr. DeBellis	
1	Kaman Sciences Corporation	DRXHE-CC, Mr. Zubal	
	ATTN: Mr. Portare	Cdr, USOC&S	
	1911 Jefferson Davis Highway	US Army Ordnance Center	
	Suite 1200	and School	
	Arlington, VA 22202	ATTN: ATSL	
1	Pacific-Sierra Research		
	Corporation		
	ATTN: Dr. McClellan		
	1401 Wilson Boulevard		

Suite 1100

Arlington, VA 22209

## USER EVALUATION SHEET/CHANGE OF ADDRESS

This Laboratory undertakes a continuing effort to improve the quality of the reports it publishes. Your comments/answers to the items/questions below will aid us in our efforts.

1. BRL Re	port Number	Date of Report
2. Date R	eport Received	
3. Does tother area	his report satisfy a need? of interest for which the	(Comment on purpose, related project, or report will be used.)
4. How sp data, proc	ecifically, is the report edure, source of ideas, et	being used? (Information source, design
as man-hou	rs or dollars saved, opera	rt led to any quantitative savings as far ting costs avoided or efficiencies achieved,
		hink should be changed to improve future ization, technical content, format, etc.)
	Name	
CURRENT	Organization	
ADDRESS	Address	
	City, State, Zip	
		or Address Correction, please provide the ove and the Old or Incorrect address below.
	Name	
OLD ADDRESS	Organization	
COUNTU	Address	
	City, State, Zip	

(Remove this sheet along the perforation, fold as indicated, staple or tape closed, and mail.)  $\ \ \,$ 

Director
US Army Ballistic Research Laboratory
ATTN: AMXBR-OD-ST

ATIN: AMADR-UU-SI

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE. \$300

CALLED CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE

Aberdeen Proving Ground, MD 21005-5066



BUSINESS REPLY MAIL

FOLD HERE

FIRST CLASS PERMIT NO 12062 WASHINGTON, DC

POSTAGE WILL BE PAID BY DEPARTMENT OF THE ARMY

Director
US Army Ballistic Research Laboratory
ATTN: AMXBR-OD-ST
Aberdeen Proving Ground, MD 21005-9989

FOLD HERE

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES